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THE JOURNAL

OF THE

American Medical Association

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VOLUME 81, No. 15 — 535 North Dearborn Street, CHICAGO, ILL. — OCTOBER 13, 1923

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Entered as Second-Class Matter, June 25, 1885, at the Postoffice at Chicago, Ill., under Act of March 3, 1879. Acceptance for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917, authorized on June 14, 1918. If undeliverable, return postage is guaranteed

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***Published by* PAUL B. HOEBER, INC. : : : 67-69 EAST 59TH STREET, NEW YORK CITY**

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 81, NO. 15 CHICAGO, ILLINOIS OCTOBER 13, 1923

THE PLACE OF MEDICINE IN PUBLIC HEALTH *

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Secretary, California State Board of Health
SACRAMENTO, CALIF.

From a theoretical standpoint, the practice of medicine bears the same relationship to public health today that it did twenty years ago. Actually, the changes that have occurred in this relationship are extremely drastic. In recent years a new social point of view has developed, but most practitioners are apparently unaware of the awakening of the nation's social conscience and of the new demands on the profession that must naturally follow. It is my purpose in this paper to outline the more recent development of the demand for public health protection and the general trend of its fulfilment.

The advancement of learning in America is the most outstanding achievement of the age in which we live. We are in the midst of an enlightened public opinion. Our educational systems have become so extensive that even our recently arrived immigrants have little or no difficulty in securing at least the rudiments of an education. For the last few years many of our universities have been graduating classes of three and four thousand students, whereas a few years ago such graduating classes consisted of but two or three hundred. The development of our secondary schools and the growth in their patronage is unparalleled in the history of education. Many of our high schools today have the status of our colleges of a decade ago. Elementary schools cannot be built fast enough to provide for our growing population. Education is becoming universal, and the results are clearly reflected in public opinion.

Our educational progress, however, is not marked simply by the acquirement of a large amount of information and opinion. It is marked by a distinct demand for more information and for the practical application of scientific knowledge. There is, without doubt, more widespread activity in the expression of a desire for the conservation of public health than for any other existing function of government. Every individual and every community knows that without health they cannot enjoy the advantages of our complex civilization. While the development of this public demand for the safeguarding of its health is along natural lines, the advancement of learning has been the chief factor in its growth. Its further development has been fostered through the activities of civic, social, medical and semi-medical organizations.

Perhaps the most forceful demand for public health has come through the medium of women's organizations. Everywhere in our country, women have grouped themselves together to study our health and welfare problems. Woman's interest is largely centered in the home, and it is not surprising that she has devoted herself to the betterment of the health and welfare of the mother and the child. So intensive has been this zeal to apply the scientific health facts which they have gained for the development of child welfare that they have been able to influence not only local government, but even national legislation.

Another stimulating force of great intensity was provided by the late war. Our men, while under arms, learned the advantages that could be gained by organized health protection. Under continuous health supervision for many months they received first hand demonstrations of the way medical science can maintain health among large groups of individuals. On his return to civil life, each of these veterans has become either a potential advocate or an active missionary in the advancement of public health among the people of his community. He has become an important factor in the development of this tremendous demand which is now being felt in every corner of our country.

Rural life in America has completely changed during the past decade. The urbanization of the rural districts of America is taking place so rapidly that it is doubtful whether we are fully aware of its significance. The former isolation of the rural community is disintegrating so rapidly that the United States, even now, is fast becoming one big city. Improved transportation is perhaps the greatest factor in bringing about the change. Improved means of communication, of which the radio is the newest, also have helped. Travel, with its educational advantages and the rapid spread of ideas, is reorganizing completely the old time rural mode of living. As a result, there is a continued advance in the economic and social point of view of our rural population. The path of this advance is indicated in the development of union schools, cooperative marketing organizations, farm bureaus, university extension, and library service. It is shown in the expressed desire of rural residents to possess all of the attributes for better living, which through their former isolation have been denied to them.

Rural districts, until the last few years, have almost without exception lacked the machinery for safeguarding community health. At present, however, there is a tremendous impetus to the establishment of full-time health departments in such communities. Stimulated by the activities of the International Health Board and the United States Public Health Service, these newly formed public health units are extending health edu-

* Read before the joint meeting of the Section on Diseases of Children and the Section on Preventive Medicine and Public Health at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

cation in rural districts as well as safeguarding the health of rural residents. In fact, the demand for full-time county health departments is so great in many states that it is imposible to find trained public health men to administer them. Rural America is awakening to the fact that urban America is keeping its residents in health; and when rural America once awakes, it advances solidly, resolutely and permanently.

One of the general results of this widespread demand for individual and community health protection is seen in the growth of clinics and in the large number of new health centers that have been established during the last few years, many of which are concerned primarily with the correction of physical defects in children. How these public dispensaries and clinics have increased in number and how their patronage has grown during the last few years are shown in a report issued by the American Medical Association in 1922. There were 3,944 known dispensaries operating in the United States during the year 1921, of which number 935 are out-patient departments of hospitals, or individual dispensaries which provide general medical and surgical service for their patients. The total number of patients for the year 1921 in all general and special dispensaries and clinics is estimated at eight million, and the total number of visits by these patients during the year is estimated at 29,500,000. Most of these institutions are located in the larger cities; and, while many of them provide free service, the report indicates that there is an increasing tendency to charge nominal fees, thereby placing part of the cost of the institution on the patient. With the total poulation of the United States a little over one hundred million, it is obvious that approximately one twelfth of the population of the country attended these dispensaries and clinics during the year 1921. The number attending these institutions at the present time is undoubtedly much greater, for there is a marked increase in the number of patients seeking treatment in general clinics. The increased attendance in dispensaries for child and maternal hygiene, tuberculosis, venereal diseases and mental hygiene is particularly noteworthy. The important part these institutions play in the extension of medical service and in the provision of health education must not be overlooked. That they are growing and that more are being established continually indicate that there will be no hindrance to their further development, and that they constitute a permanent factor in our national life.

That the rural community of today is quick to take advantage of the improved social and institutional facilities provided in the large cities is shown also in the increased number of community hospitals in rural districts. It is indicated in the growth of clinics and in the more extended practice of group medicine in smaller towns. It is seen in the large number of new health centers that have sprung up during the last few years, and in their growing patronage by residents of rural communities. The report referred to indicates that one twelfth of the population of the United States in 1922 attended dispensaries and clinics, nearly all of which are located in large cities. If the number of clinics and health centers in rural districts, together with their patronage, continues to grow at the present rate, it would appear that in a few years at least one fifth of the population of the United States will receive medical service in institutions of this sort.

Organized womanhood, the veterans of the World War, and residents of rural communities, together with the masses of the better educated persons throughout the country, are gradually but surely forcing preventive medicine to the foreground. Strange to relate, the leaders among the profession engaged in fulfilling the demand for the intensive application of preventive medicine are few. This is undoubtedly due to the fact that medical education in the past has not fitted practitioners for fulfilling the requirements of this newer preventive aspect of medicine. It is essential that new methods of teaching medicine be evolved in our medical schools, not alone for the benefit of the newer and better men who are to take our places, but for the advancement of the generations of Americans to follow. The attitude of medical students cannot be guided along public health lines unless the members of the faculty of medical schools have the correct perspective. They must first of all have a social point of view with a full understanding of the obligations that are placed on the profession, and they must also appreciate the relative value of preventive and curative medicine. The instructor of today must recognize the changes that have occurred in medicine and in public health as professions during the last few years, and his teaching objectives must be directed to meet this point of view. Fortunately, some of our medical schools are appreciative of the newer methods that must be used to meet present conditions. The more progressive schools are establishing methods by which the medical student in his undergraduate studies will learn to serve his patient with preventive as well as curative measures, and to remember that he must always serve the best interests of his community.

Significant changes have been adopted recently in the curriculum of the medical schools of the University of Pittsburgh and of Yale University. The dean of Yale University School of Medicine and the members of the faculty have outlined a policy which involves the centering of the whole university hospital around the dispensary and the centering of the dispensary around the health clinic; and each course, from pathology to pediatrics, is imbued throughout with the new idea that the function of the physician is to promote health and not merely to alleviate disease. In the University of Pittsburgh School of Medicine every instructor in every department is teaching preventive medicine on every possible occasion. Dr. Samuel R. Haythorn,[1] director of hygiene and preventive medicine of the Pittsburgh school, says:

> Some departments have greater opportunities for emphasizing prophylaxis than others. The department of medicine has perhaps the widest range of subjects. With every acute infectious disease, the means of spread should be discussed, the kinds and relative amounts of immunity afforded should be emphasized, and the means of controlling the spread to other persons mentioned. Much of this is repetition, but it serves to fix the facts in the student's mind. . . .
>
> Venereal disease prevention should be discussed during the courses in gynecology, obstetrics, skin diseases and genito-urinary surgery; prevention of blindness, in ophthalmology and obstetrics; child welfare work, in obstetics and pediatrics; cancer prevention, in medicine, surgery, gynecology and the specialties; fatigue, in physiology; dietetics, in metabolism and medicine; prevention of general infection, tetanus, anthrax, etc., in surgery, and so on indefinitely.
>
> It is well recognized that these matters are receiving consideration at present, and I do not mean to insinuate that they are not. I do mean that still more emphasis should be placed on them, and that the instruction should be more

1. Haythorn, S. R.: The Problem of Preventive Medicine in Practice and in Medical Education, J. A. M. A. 80: 885 (March 31) 1923.

pointed, namely, that both the instructor and the student should be conscious, at the time, that preventive medicine is being discussed. . . .

The teaching should be carried out with a view to informing the student of the best preventive measures available, and should be directed toward preparing him for leadership in progressive health movements. If the public is convinced that the physician and student are doing everything within their power to decrease sickness and prolong life, there is no danger that it will not continue to extend to them the protection and support they have always enjoyed.

Medical education must in this way provide for future needs of the American people. The new generation of physicians must be equipped to fulfil the demands that are being made of medicine. The physician of tomorrow must be made to understand that his relation to the community is not entirely individualistic. He must not make the mistakes of the physician of the past, who had little conception of his duties as a citizen, who had little knowledge of community life or of the social relations that existed between him and the people of the community, who knew little of the social aspects of disease and of his obligations to society. Sir George Newman has said:

No medical man who is in a right sense a man of the world can have failed to ponder on the near relationship which obtains between the practice of medicine and the social life of the people. It has often been said that our patients are not cases but men, women and children, each with a separate personality, environment, heredity and variation, with individual habits, training, temperament and psychology. We cannot be wise healers of the patient of the community without a large sympathy and a liberal humanism. We are the witnesses of a strange and rapid transition in the life of the people as a whole, an enlarging franchise and new social complexes; higher wages, shorter hours of work, increased leisure, high prices and democratic aspirations are not remote from the national health and well being. The doctor must be the missionary of hygiene, the chief educator of the people in ways of health. In being that he cannot escape his share of responsibility in the study and handling of many of the medical-sociological questions which surround us—education, sobriety, cleanness of living, the prevalence of venereal disease, prostitution, the penal laws, the causes of certain crimes, the integrity of family life—all such questions concern us and to fulfil our vows we must be concerned with them. The cultivation of international science, cooperation and amity should also, I think, be added. It is essential that we should remember that whilst these issues belong to the warp and woof of medical polity, the decisive factor is not medical, and movements in favor of their determination on medical ground are only due to failure.

The physician of tomorrow must live and work as much for his community as he does for his individual patient, and each individual patient must be considered with relation to the community as a whole. He must know that he is not merely an alleviator of suffering. He is a citizen, teacher, philosopher, counselor, and leader in community life. He must be possessed of scientific knowledge, and he must use this knowledge for the benefit of his fellow men. He must take his place in the forefront when projects for the advancement of community life are considered. The future prestige of the medical profession in America depends on whether practitioners of medicine in the future shall practice their profession entirely for the benefit of individuals or partly for the benefit of the community as a whole. The answer lies in the teaching methods of our schools of medicine throughout the country. If they fulfil this demand, it will enhance not only the prestige of medicine, but it will bring healthier, happier lives to the people of the commonwealth.

The time has come when every practitioner of medicine must take his place primarily as a leader in his community. Dr. Louis B. Wilson [2] has said:

The American medical graduate of the last ten years has become on the face of it the most schooled man of his age. He should be not only the most scholarly, but he should come to stand in his community for the highest citizenship, the broadest culture, and the most noble character. If he does not seek in his daily life, professionally, intellectually and morally to develop himself to the highest level to which he is capable of attaining, he is betraying the trust of the state, which has expended on his early training thousands of dollars more than he or his parents have ever paid into school treasuries; but so long as physicians foster the fiction that their sole duty is caring for the sick, so long will the well take them at their word and concede to them no measure of public work either in small or large affairs of state. I would urge, therefore, physicians to be not less faithful in their duties as physicians, but also to be much more faithful in their studies as citizens, since they owe it to themselves, to their profession, and to the community.

No professional man can be under greater obligation to give freely of his skill in advancing the best interests of humanity than the practitioner of medicine. He is vastly more than a mere alleviator of physical suffering. His long years of schooling and his intimate contact with his fellow men should fit him for the very highest and most consecrated, constructive work in safeguarding the health of all the people. He must give full cooperation to organized health departments. He must consider every case of communicable disease as the property of the state, and therefore subject to the control authorized by the whole people. He must do, not only more for his individual patients, but also for the community in which he lives. In Sir Thomas Moore's "Utopia," the physician was made one of the most important units in that ideal government. He was charged with caring for the sick, but first of all, with keeping people well. Is it not possible that we may be on the borderland of Utopia?

ABSTRACT OF DISCUSSION

DR. S. B. MCKERRIHAN, Portsmouth, Ohio: When we speak about our social conditions, we have a great question to deal with. The important thing to bring before the minds of the people is the question of who should marry and who should not. It is important to prevent the birth of the feebleminded person. He is the dangerous element in society. Buildings are being erected in Ohio for the incompetent and those who are a burden to society. But if we are to better the nation, physicians and the women must be taught who should marry and who should not. If a moron marries a healthy woman, half of his children will be morons or feebleminded. To those who are not familiar with defectives, a large and dangerous element is the moron type. He can read and write and he can remember; therefore he is the dangerous man. We shall have to do much in our social work to prevent that kind of individual. Therefore, our women should be taught, and their fathers should be taught who their daughters and sons should marry. Social agencies have much to do, and education will do much in that line to prevent propagation of the race by the mentally and physically unfit.

DR. LULU HUNT PETERS, New York: In a short paper like this it is impossible to mention all the points bearing on prevention of disease. I know that if Dr. Dickie had had the time he would have laid stress on one most important phase of preventive medicine—the question of normal dietetics. He says that there is a strong demand for enlighten-

2. Wilson, L. B.: California State J. Med. 21:73 (Feb.) 1923.

ment on public health, and I think, perhaps, that those of us who are doing the public health writing realize it more than any other physicians. We receive from 400 to 800 letters every day. The larger number of those letters ask about matters of diet. I encourage that, because I believe that a knowledge of dietetics will do more in preventive medicine than any other one feature. We have known for years that scurvy and rickets are dietetic diseases, but have not appreciated how many other diseases are due to lack of knowledge of normal dietetics. How many people are overweight? I have said that three fourths of our adult population are overweight, and one fourth are underweight, and the rest are normal. Of course, I am a faddist on this overweight question, but I believe that by emphasizing the prevention of overweight alone, I am doing more in preventive medicine than I can in any other field. I know that I am preventing diabetes, high blood pressure, kidney, heart diseases and flat feet. As to the teaching of dietetics in medical colleges: A year ago at least, at Harvard, they were not giving courses in normal dietetics. I don't know of any colleges that are. There are splendid books written on the subject. I make this little plea to the average physician, to get a knowledge of normal dietetics. The majority are without this knowledge.

THE PREVENTION AND CONTROL OF TUBERCULOSIS AS IT CONCERNS THE MEDICAL PROFESSION *

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The prevention and control of any disease is dependent on two factors: (1) The high ideals of the medical profession having for its object the saving and prolongation of the span of human life, and (2) the demand of the people for protection.

The medical profession for centuries, out of altruistic motives and love of service, endeavored to find a ray of light in the impenetrable darkness and unfathomed mysteries surrounding tuberculosis which would prevent or ameliorate the ravages on the human family, but not until Villemin, about 1870, proved it transmissible from animal to animal was the faintest hope discerned. Immediately following this, in 1882, Robert Koch succeeded in isolating the causative agent. Thus, hope became an attained fact. To this point only the profession had been concerned in the attainment of ambition.

Beginning now, the suffering public, which had groped with fear in ignorance, demanded the practical application of professional attainment, and out of this demand grew voluntary and official organizations having for their object the protection of the body politic against the plague, which movement has grown so rapidly until at present there are scores of voluntary agencies actively working with the official agents for its control.

The disease is so universal that no one practicing medicine, however limited his specialty may be, fails to see it and be called on to advise concerning it.

Any plan to control tuberculosis must have for its object (1) the prevention of new infections, or, rather, the activation of latent infections, and (2) the cure and handling of existing cases. And it is one of the very few diseases whose treatment is properly a public function.

The prevention of new infections and activation of latent ones must be on a broad basis, for the reason that active tuberculosis is usually secondary to some other disease, overwork, worries, dissipation, irregular habits, faulty nutrition or bad housing. That a cure is possible in a good number of cases by the proper application of modern knowledge of scientific medicine is well known. The innocent can and should be protected from the incurable.

All well founded official and nonofficial or voluntary agencies have built on these fundamental principles and have, for their scheme of work, (*a*) the education of the public in the cause and transmission of the disease; (*b*) the predisposing factors, and (*c*) the necessity for early treatment. These facts are being given to the suffering public by these agencies in printed literature, motion pictures and lantern slides, lectures on health, clinics, sanatoriums and social work.

The literature usually is designed carefully to teach the lesson of accomplishment of scientific medicine, to teach the importance of the public in keeping in close touch with the family physician, who is interested in a human way, as against the unscrupulous quack, who preys on the inherited fear of this disease, with a purely selfish motive.

Motion pictures, slides and lectures should be used to increase the effectiveness of printed information. In a well organized campaign they are used by the advice of the profession of the community. Owing to the fact that the profession never advertises and that there are cults and so-called professions using this very effective method of getting public attention, it is all the more important that we have in our work the advice and counsel of the general profession, so that in a well conducted campaign the people receive the benefit of our information.

Under this heading comes one of the functions of official agencies which sometimes meet with criticism—that of accurate reporting of individual patients by the profession. This was first demanded of physicians in Italy in the first half of the eighteenth century, and a penalty of from $300 to $700 was imposed for failure to report. At this time it is required in almost every well organized country, and not only assists the health agencies to prevent spread, but gives them the opportunity to assist the family physician in holding the patient in check to prevent quackery or, what is worse, wanderlust.

The predisposing factors named above should be under the control, as an individual, of the family physician, and collectively, of official agencies, assisted by whatever volunteer agencies may be in existence. The family physician stands as guardian. His high ideals and honesty command the confidence and respect so necessary in the protection of young life. All agencies should assist him rather than work independently.

It is my belief that clinics are necessary in the control of tuberculosis only as a demonstration in a given community, and should be always conducted under the auspices of the local profession.

The primary object of a clinic is to get an early diagnosis, which could be fairly well established by the family physician, by the use of clinical knowledge, which is often lacking in a less experienced man, who depends to a large extent on mechanical means for diagnosis.

* Read before the joint meeting of the Section on Diseases of Children and the Section on Preventive Medicine and Public Health at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

The high degree of specialism, with its attendant egotism, has led the modern physician to the belief that only our experienced specialist can make an early diagnosis; while this is true in some cases, the average man with more confidence in himself could make accurate diagnosis in at least 75 per cent. of cases.

I believe that a different line of education should be instituted by official agencies. I am aware of the fact that many believe that the public clinic, whether it be free or pay, is necessary to control; but one has only to look at past achievement to be convinced; that is, the rapid decline in death rates before any organized effort to control.

Sanatoriums are necessary in most states and large cities, owing to the inadequacy of private institutions. These should be operated on a plan of close cooperation with physicians to act as a clearing house for them, as well as to serve the public. The patients sent to these institutions not only should be taught tuberculosis, but also should be given a broad public health knowledge, as well as shown the importance of relying on their family physician for constant health advice and periodic examinations for self and family.

The sanatoriums should be open at all times to the physicians for study, and should be equipped for this purpose.

With this ideal plan must come the ideal physicians, who are able and willing to do ideal conscientious work, with ambition to relieve the roaming, grasping victim of his physical suffering and mental anguish. When this is done, quacks, isms and cults will be reduced, tuberculosis will be controlled, our people will no longer fear it, and the spirit of our physicians, who labored for centuries to make it possible, will be enthroned in the hearts of mankind.

ABSTRACT OF DISCUSSION

DR. F. M. POTTENGER, Los Angeles: I agree partly that the prevention of tuberculosis cannot be attained without the full and intelligent support of the general practitioner. Tuberculosis has decreased 50 per cent. in the last twenty-five years in America and 50 per cent. in the preceding fifty years. In order to continue this progress we must solicit the hearty cooperation of the profession as a whole. Tuberculosis, because of the pessimistic psychology surrounding it from time immemorial, has been treated as a stepchild of medicine. It has been and still is considered hopeless by too many physicians and laymen, in spite of all progress made. To correct this, the general medical man must be made to understand that tuberculosis, when treated early and under proper conditions for a sufficient length of time, will nearly always yield a satisfactory result. But if diagnosis is made, and treatment begun late, or if early cases are not treated properly and for a sufficient length of time, the prognosis is very serious. General practitioners can make a diagnosis of tuberculosis in 80 per cent. of cases they see if they will take the time to ascertain and analyze the clinical history, and make a physical examination according to their ability. This leaves about 20 per cent. of borderline cases in which the diagnosis is difficult and the help of specialists might be necessary. There are certain pertinent facts that medical men as a whole should know. First, that infection takes place in childhood; that nearly all persons are infected before they attain the age of 15 years; that disease in later life is probably in most instances an extension from these early infections. An infection does not mean clinical disease. Clinical disease is the only one to be treated. If pediatricians would recognize it as their duty to see that the more severe infections in childhood heal, it would materially decrease clinical tuberculosis in later life. The curability of tuberculosis should be estimated by the best results that are obtainable under ideal conditions. Early diagnosis is the key to the prevention of tuberculosis, but early diagnosis itself is comparatively valueless unless accompanied by intelligent treatment.

DR. H. A. PATTISON, New York: It is a great mistake to say that the general practitioner cannot diagnose early tuberculosis. He could if he would. The reason he does not do it is that he is careless. I do not know how to make the careless physician careful. Probably the solution is a change in medical education. I know of no tuberculosis specialist who does not say that the most important element in the diagnosis of tuberculosis is the family and personal history of the case. How many physicians sit down when the patient comes to the office complaining of symptoms of focal infection of some sort and actually talk over the family and personal history of the patient? I am convinced that a very small percentage do this. One of the reasons given is that they cannot afford it, that the fees are too low. The first thing to do is to give service, and then we can charge the extra fee. A day or two ago I visited the Abrams clinic and spent two hours watching a demonstration by Dr. Abrams. There were about fifteen doctors there taking the course. My companion had heard that in a city in the state of Ohio there had been recently a convention of doctors who were following the Abrams cult, and that there were 125 physicians, osteopaths and chiropractors there. Most of those physicians at this clinic the other day appeared to be country practitioners, and, after watching them for a while and listening to the questions, I came to the conclusion that the poor devils were trying to find out how to diagnose disease, not having been adequately instructed in medical schools. They were trying to have Abrams tell them how to diagnose the disease by percussing the abdomen of a man, with the patient's blood on a piece of blotter, in a cylinder. There are hundreds of men all over the country who are doing just that sort of thing. The answer is education, and I wish that Dr. Dodson's paper might be put in such form that it would get into the hands of every general practitioner in the country.

DR. LOUIS BOONSHAFT, San Jose, Calif.: There is one thing that has been omitted in today's discussion that is of great importance, and that is the preventorium—a place for the care of children who have been exposed to tuberculosis. I have been instrumental in the establishing of a county preventorium in San Jose for the care of children who have been exposed to tuberculosis and show physical signs of early tuberculosis. It is amazing to see the results that have been obtained by the proper treatment of these undernourished little patients. Clinical examination shows that these children are 15 or 20 pounds underweight, and are usually coughing and have some glandular involvement. Four or five months' treatment in the preventorium will in nearly all cases restore them to a normal condition. This is one way in which we shall wipe out tuberculosis in future generations. In order to cure tuberculosis, we must prevent it first. The whole trend of medicine today is along the lines of prevention of disease, and there is no better way to eliminate tuberculosis than by preventing it in childhood. If we take those children who have been exposed and place them in a preventorium, they will develop a resistance so that, when they become adults, they will not break down with the active disease. In our association we make a practice of following up these children who have been through the preventorium for a period of at least five years, and for a longer period if possible. In this way we are bringing about this desirable condition that Dr. Pottenger spoke of; namely, the prevention of the further increase of tuberculosis in future generations.

DR. THOMAS D. WOOD, New York: For thirty years I have divided my time between the work of the physician and an attempt to do something in education in institutions training teachers for the general field. All institutional physicians have been attempting to advise teachers and students with reference to the problems of health, and I have been cheered by the gradual but steady progress during these thirty years in the growing appreciation on the part of practitioners of medicine in all parts of the United States with reference to their interest in health, in their willingness and ability to advise students and teachers regarding problems of health,

of preventive medicine, and the treatment of disease. I wish, therefore, to express my keen appreciation of the growing recognition by physicians of the health side of this whole program of the practice of medicine. It is certainly heartening to those of us who have been trying to work in the field of preventive medicine and health education for many years to see that physicians are coming to appreciate the socialization of medicine. I mean, essentially, what the newly elected President of the American Medical Association is reported to have said regarding the future progress in the development of the work of the medical profession. It is apparent that we must have combined in the training, in the understanding, in the professional work of physicians the recognition and treatment of disease, with a coordinate appreciation and understanding of, and cooperation in, the prevention of disease and in the field of health education. I know of nothing that seems more important not only for the promotion of health but also for the progress of civilization and of human culture in this land and in other lands than a more perfect mutual understanding and cooperative effort of those who are working in the medical field and in the educational field; in closer mutual understanding and cooperation between the physicians and teachers in this general promotion of education and of health. Dr. Holt has aptly phrased this in relation to one phase of this problem in the program of the newly organized American Child Health Association: "Health in education, and education in health."

Dr. Montague Cleeves, Los Angeles: As a school physician, I should like to say that what school physicians do is not to practice medicine so much as to see that those thousands of children who are now going without any treatment get treatment. So, of all physicians, the children's physicians are the most helped. It has been somewhat the fashion lately to criticize school physicians. I was speaking the other day with one who had been a school physician for about ten years. She was a graduate of one of our best schools, and spoke with great pride, saying that after ten years' work in one of the Los Angeles schools she had at last succeeded in getting a class to graduate to the high school who had had all physical defects attended to. She herself had not attended to any of them, but had seen to it that those girls had progressed from the eighth grade of this school to the high school in apparently perfect health. That is what I think has been overlooked: that these children, unless the school physicians and state physicians and school nurses go among them and urge their parents to get something done, do not go to the doctors at all. As public physicians we are consulted by people who consult all of the sects. People such as the osteopaths are at present displaying much more interest in the Sheppard-Towner bill and similar bills than we are. The regular physicians often do not cooperate with the families and the schools as they should. The pediatric section should certainly cooperate with and endorse the work of the school physicians, who are strictly pediatricians and trying to keep the children healthy.

Dr. O. M. Gilbert, Boulder, Colo.: So far as the present generation is concerned, more is to be accomplished by early diagnosis even than by means of prevention. In preparing a paper along this line some time ago, I became convinced from consulting my records that cases could have been diagnosed on an average of from four and a half to five years earlier than they were. I would go much stronger than Dr. Pottenger in saying that 90 per cent. can be cured. In a much larger percentage the trouble can be arrested and rendered innocuous. One of our eastern physicians said some time ago: "We cannot expect every busy practitioner to become an expert in physical diagnosis, but we can expect him to become an expert in the use of the clinical thermometer and the scales." I would put, first of all, a good personal history.

Dr. Henry Boswell, Sanatorium, Miss.: I merely drew in outline the actual relationship that should exist between the health agencies controlling the fight or handling the fight against tuberculosis and the family physician, or practicing physician, whatever his specialty may be. It does not matter what he practices; he meets tuberculosis every day. So far as fighting tuberculosis as a disease is concerned, if we handle that from the standpoint of the specialist it never will be controlled. It is necessary to fall back on the family physician, who has the confidence of his clientele, and who has control of the predisposing factors and of those things that are the foundation for the breakdown. There should be cooperation between the medical profession and the volunteer agencies or official agencies, as the case may be, if we are going to prevent the wandering of the patient from physician to physician. I am not criticizing the physicians any, but we do have this particular occurrence in our profession—that, if a man goes over here and his disease is diagnosed as tuberculosis, he steps across the street because he does not want to have it, and the other fellow, recognizing that he does not want to have it, tells him what he wants to hear. Unless we can get away from that sort of thing and have physicians working hand in hand with the health agencies, with appreciation enough to realize that it is on the altruistic work of our physicians in the past that the best health work is standing today, and that we owe it to them and to the public to work hand in hand in some sort of fashion to control not only tuberculosis but all those things that go with it, we shall not make much real progress in the solution of our problem.

FATIGUE AS A FACTOR IN THE CAUSE AND TREATMENT OF TUBERCULOUS DISEASE *

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The discovery of the bacillus of tuberculosis by Koch, in 1882, inspired the hope of a speedy solution of all the perplexities surrounding this illusive disease, tuberculosis, with its protean manifestations. Forty years of effort with hundreds of students of tuberculosis have served further to demonstrate the complexity of the problems to be solved. Krause,[1] on the one hand, claims great accretions to our knowledge, while Lawrason Brown[2] declares: "We are all impressed by the fact that many utterances relating to this subject, often ipse dixit in character, are sustained not by proof but by weight of authority. In fact, we have had thrust upon us so many half truths that, if we seriously consider the whole problem today, we find that students of pulmonary tuberculosis are in complete accord upon only one fact, established thirty-nine years ago; namely, that pulmonary tuberculosis is due always to the presence of tubercle bacilli in the lungs." Later he adds, "However it occurs, we know that a large proportion of the urban population, at least, harbor the tubercle bacillus by the time they reach puberty. This might be stated as a second uncontrovertible fact." Certain it is that our knowledge concerning infection and its relation to immunity and resistance is still far from complete.

The tuberculin reaction and numerous series of postmortem findings have established the fact of the wellnigh universal infection by the tubercle bacilli among civilized peoples, and yet only 2 per cent. of the population develop active tuberculous disease. Why, and how, are questions as yet not fully answered.

It is generally accepted that the primary infection occurs in childhood or adolescence. But the controversy over inhalation and ingestion as the one or the other more important avenue continues, and "bids fair to be settled by the decision that both are important,

* Read before the Section on Preventive and Industrial Medicine and Public Health at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

1. Krause, A. K.: The Tuberculosis Problem, Am. Rev. Tuberc. 5: 771 (Dec.) 1921.

2. Brown, Lawrason: Some Causative Factors in Pulmonary Tuberculosis, Am. Rev. Tuberc. 5: 518-519 (Aug.) 1921.

and are not separate modes in fact."[3] If, as held by Baldwin[4] and others, "adult tuberculosis is the result of first infection and reinfection before the age of 21," what are the contributing factors that transform latent tubercle into active disease processes? There is first in importance the problem of susceptibility. What are the inherent physiologic factors of resistance, including heredity and race? Then there is the question of mere mechanical resistance and the accident of location of the tubercle; also such contributing factors as the physical and emotional stresses and strains of early adult life, due to educational and industrial conditions; dissipation; pregnancy and parturition; nutritional disturbances and deficiencies; worries; infections and diseases due to other bacteria, and certain occupational hazards, causing either fine or gross traumas and fatigue.

That fatigue and its accompaniments constitute a larger factor in arousing latent tuberculous infection than appears to be generally recognized is the subject of this inquiry. It is possible within the limits of this paper to make only a short sally into a field of inquiry where, it is hoped, experienced investigators will go much farther.

NATURE OF FATIGUE

The nature and causes of fatigue involve considerations as interesting as they are complex. Adequately to define fatigue is difficult because of the numerous phases involved—psychologic, physical, chemical, nutritional.

Rivers[5] defines fatigue as "a lowered capacity for work which follows, or occurs during, the performance of work of which it is the direct result."

Amar[6] defines fatigue as "the effect which limits the duration of work," and in another connection says: "It is the result of muscular and nervous phenomena which give rise to an increasing malaise or uneasiness, and, above all, a feeling of impotence. This feeling progresses through every stage, from mere lassitude to the acutest suffering, and it persists for a varying space of time."[7]

Spaeth[8] considers it as "resulting directly from the accumulation of the products of activity and varying with the duration, rate and intensity of the performance and the initial strength or capacity of the physical system involved."

Drever[9] points out that:

> The answer may be given in subjective or in objective terms. Subjectively, fatigue is a state of consciousness, usually more or less disagreeable, determined by a mass of sensations, sometimes with fair definiteness localized, and vague feelings which are not localized. . . . It is accompanied by a disinclination for work and a desire to rest, with a felt incapacity for work added. Such a definition, however, is of very little service even to pure psychology, and of no use at all outside the limits of that science. . . . "Weariness" is probably a better word to employ to the subjective state, inclusive of boredom and of real fatigue. . . . This subjective weariness does not necessarily imply diminished capacity for work, nor does its absence imply that capacity for work is not really diminished. If we define fatigue in objective terms, we are practically compelled to define it in terms of output. That is, we have to define it as a state of lowered efficiency in the organism, brought about by the expenditure of energy in doing work, and showing itself either in impairment of the quality of the work subsequently done, or in diminution of the quantity, or in both. This definition by no means escapes all the difficulties. Considerable fatigue may apparently be present without any of these objective results being produced. At a certain stage, as Myers points out, fatigue may produce a general excitement with extravagance in the expenditure of energy, and as a result increased output with no falling off in quality.

The similes of Collis and Greenwood[10] are illuminating. Fatigue, they say, is not merely due to the using up of the combustible material in the muscles, or to loss of the power of the nerves and end-organs to convey impulses, or to weakening of the capacity of the brain and spinal cord to originate impulses; it is not merely the running down of the car for want of gasoline; it is not the cessation of a chemical reaction because the latter is complete. It is rather interference with the mechanism due to accumulation within of the chemical products of activity; i. e., of catabolism; somewhat as the products of combustion by fouling a sparking plug may slow down or stop a motor which still contains a plentiful supply of gasoline, or somewhat as some chemical reactions are interfered with by one of the products formed.

It appears to be widely accepted that fatigue is not an effect on the muscular system as much as on the nervous system:

> In reality, the most severe bodily activity fails to produce any close approach to complete fatigue of the muscles. The fatigue is fatigue of the nervous system, though in sensation its effects may be referred to the muscles themselves. . . . Even in laborious work it is doubtful whether a man by voluntary effort can cause his muscles to approach advanced fatigue. It is well known that a man apparently "run to a standstill" in a race may upon some new excitement run freshly again, under augmented stimulus from the nervous system, initiated there perhaps in part along new paths.
>
> The problems, then, of industrial fatigue are primarily and almost wholly problems of fatigue in the nervous system and of its direct and indirect effects.[11]

Mosso[12] writes:

> Whether man works muscles or brain, the nature of the fatigue is always the same, because there is only one actuating force in existence, nervous force.

Kent[13] writes:

> Fatigue depends partly upon the using up of fuel—a conception so familiar that it requires no further emphasis—and partly upon the accumulation of waste material. The latter factor is not unimportant, even when the muscles alone are considered; an isolated muscle which has contracted until to all appearance completely tired may be refreshed and induced to work again by merely washing out its blood vessels with a solution of common salt. Evidently the salt can afford no fresh supply of energy. It merely removes waste products, and the muscle acts again. Fatigue in this instance was largely a matter of the clogging of the mechanism. But it is not only the muscles that we have to consider. They are under the control of the nerves and of the central nervous system—the brain and the spinal cord. And the nervous sys-

3. Baldwin, E. R.: The Etiology of Tuberculosis in Its Modern Aspects, New York Tubere. A. Bull. **3**: 4 (Nov.-Dec.) 1922.
4. Baldwin (Footnote 3), p. 6.
5. Rivers, W. H.: Influence of Alcohol and Other Drugs on Fatigue, Croonian Lecture, Roy. Coll. Phys. London, 1906, p. 2.
6. Amar, Jules: Human Motor, New York, E. F. Dutton & Co., 1920, p. 206.
7. Amar, Jules: Physiology of Industrial Organization, London, 1918, p. 76.
8. Spaeth, R. A.: Problem of Fatigue, J. Indust. Hyg. **1**: 214 (May) 1919.
9. Drever, James: Psychology of Industry, New York, E. P. Dutton & Co., 1921, p. 61.
10. Collis, E. L., and Greenwood, M.: Health of the Industrial Worker, Philadelphia, P. Blakiston's Son & Co., 1921, p. 81.
11. Great Britain Munitions Ministry, Health of Munition Workers Com., Hours, Fatigue and Health in British Munition Factories, reprinted, Bull. 221, U. S. Labor Statistics Bureau, Washington, 1917.
12. Mosso, Angelo, quoted in: Amar, Jules: Human Motor, p. 214.
13. Kent, A. F. S., in: Industrial Administration: A Series of Lectures, Manchester, University Press, 1920, p. 189.

tem is a far more delicate structure than the muscles, and likely sooner to be damaged by the presence of waste material.

Thomas [14] says:

The waste products added to the blood act upon the nerve endings in muscle and upon the gray matter in the brain, and create a sense of fatigue. Although the sense of tiredness is referred by us to overworked muscles, the location of the cause is less in the peripheral than in the central nervous system. On the one hand, waste products act on the muscles, diminish their contractility, and render them less responsive to nerve stimuli, and on the other hand they poison the large nerve cells in the gray matter of the brain, render them less receptive of sensory stimuli, and in this way reduce their power of emitting volitional impulses. There is therefore in fatigue an element that is mental as well as physical.

The offending products, referred to as fatigue substances, resulting from the combustion of glycogen are not fully known but are chiefly carbon dioxid and lactic acid. "The physiologist," writes Drever,[15] "has established the following" main facts:

When energy is expended in the doing of work by a muscle there is consumption of energy-producing material, and the production in the muscle itself of substances . . . which act as poisons on the tissues. The substance in the muscles which produces the energy, which acts therefore as fuel, is glycogen, and the chief toxic substances produced are carbon dioxide and latic acid. Glycogen in the form of "animal starch" is stored in the liver and the muscle cells. The liver acts as a storehouse for the muscles, and in strenuous muscular work the blood brings glycogen from this storehouse to keep the muscle supplied. Complete fatigue would be produced if this store were exhausted. That does not happen, however, for the accumulation of toxic substances in the muscles produces . . . the cessation of muscular activity long before this . . . exhaustion.

CAUSES OF FATIGUE

The causes of fatigue are diverse. Occupations requiring close attention are a serious cause of fatigue, especially when there are continued extraneous irritations tending to divert attention, such as loud noises, flickering or dazzling lights, and jarring processes. Prolonged labor and monotony of operations cause fatigue, which is hastened and augmented if there is lack of interest in the work, with little recreation. Swift [16] emphasizes the importance of interest in the daily task in retarding fatigue:

The effect of the emotions upon fatigue shows that the vocation which a young man selects means much more than the financial returns. His ability to put his work through depends upon his working capacity, and the latter draws its energy in no small degree from his enjoyment of what he is doing.

Bad ventilation, high temperature and humidity of the working place, resulting in the lack of stimulation to the skin and the cooling properties of atmosphere in movement, are potent causes of fatigue. Irregular or curtailed sleep, imposed responsibility, chronic pain, grief or worry, infections, the waste products of labor or of faulty digestion all contribute to fatigue.

Ample evidence is found in the literature of medicine, hygiene and industry of a widespread belief that fatigue is a predisposing cause of impaired health and of disease in general.

Kober [17] asserts that "one of the important predisposing causes to disease is overwork or fatigue, because of the accumulation of waste products in the blood from muscular wear and tear, together with expended nervous energy, combining to render the system more susceptible to disease. . . . Long hours and hard work are calculated to diminish the general power of resistance and thus bring about physical deterioration."

Roth [18] names, as "the chronic effects of fatigue, anemia, digestive derangements, neurasthenia, respiratory and cardiac difficulties."

A British committee report [19] states that:

The results of persistent fatigue are shown in reduced physical capacity and a loss of resistance to disease or an unsatisfactory environment, which are further reflected in returns of sickness or broken time and of the number of accidents recorded. . . . Fatigue naturally occurs earlier in underpaid, underfed persons; and the secondary results of overstrain, including sickness, are most common and excessive among this class of workers, which is mainly composed of women and girls.

Watkins [20] writes that "fatigue, which is the expression of a poisoned organism, inevitably results in reduced resistance to disease."

Thompson [21] writes:

Fatigue is known to diminish the number of antibodies in the system and hence to increase its susceptibility and lower its resistance to infectious disease such as grip, pneumonia and tuberculosis. General fatigue further acts by inhibiting digestion and ultimately interfering with nutrition.

It has been stated [22] that:

We all know that the tubercle bacillus is almost omnipresent . . . and yet relatively few come under its full influence and develop signs which can be recognized as active tuberculosis; and we all recognize now that those who are thus affected are those who suffer from lowered nutrition, often caused by long and excessive fatigue. The same may be said of pus cocci and many other microbes, and Nature has provided phagocytes, which in healthy blood continually guard us against their harmful influence, but which fail in their duty when the vital system is lowered by excessive fatigue, either physical or mental.

Spaeth [23] remarks:

Partly because of its evasive qualities, we have failed to look upon cumulative fatigue as one of the most serious health hazards in industry. As a health hazard, the most serious characteristics of fatigue are: (1) the difficulty of detecting it in its earlier stages; (2) the fact that a "nervous breakdown" frequently means the permanent injury to health; (3) the fact that cumulative fatigue is not well understood, and neither the symptoms nor the treatment have received the attention they deserve.

According to Hayhurst: [24]

Fatigue is one of the most common causes of occupational disability. This is a prime cause of the fact that bodily development in factory classes remains inferior to that in other social classes. . . . Fatigue symptoms should never be permitted to exist in industries. These are, in a minor way,

14. Oliver, Thomas: Diseases of Occupation, New York, 1908, p. 6.
15. Drever, James: Psychology of Industry, New York, E. P. Dutton & Co., 1921, p. 62. Compare Swift, E. J.: Psychology and the Day's Work, New York, Charles Scribner's Sons, 1918, pp. 165-167, 171. Hill, Leonard: Recent Advances in Physiology and Bio-Chemistry, p. 501.
16. Swift, E. J.: Psychology and the Day's Work, p. 184.
17. Kober, G. M.: Industrial and Personal Hygiene, Washington, 1908.
18. Roth: Ermuderung durch Bereufsarbeit, Tr. Internat. Kong. f. Hyg. u. Demographie, Berlin **2**: 620, 1907.
19. British War Cabinet Comm. Rept. on Women in Industry, 1919, p. 222.
20. Watkins, G. S.: Introduction to the Study of Labor Problems, p. 205.
21. Thompson, W. G.: The Occupational Diseases, New York, D. Appleton & Co., 1914, p. 625.
22. Industrial Medicine, Easton, 1915, p. 47.
23. Spaeth, R. A.: Prevention of Fatigue in Industry, Industrial Management **59**: 7-9 (Jan.) 1920.
24. Hayhurst, E. R.: A Survey of Industrial Health Hazards, Columbus, 1915, pp. 33, 35, 36, 37.

tiredness, sore muscles, stiff joints, aches and pains, etc., while in a more severe form we have such signs as muscular cramps, obstinate lumbago, wry neck, neuritis, neuralgia, and "occupational neuroses," in which any attempt to return to the regular work results in spasms of the muscles used, accompanied by soreness, constant aches and pains, trembling, gradual emaciation and partial paralysis of the parts. . . . Young persons, particularly those under 18 years of age, are permanently and more seriously damaged by the poisons and toxins of fatigue than those of maturity. . . . During this age period . . . energies must be especially conserved for the functions of growth. Where fatigue substances are allowed to factor, growth is stunted, concrescence is interfered with, and reserve forces are so dissipated that there result deformities, weakened constitutions, and a greatly increased liability to the inception of chronic diseases, particularly of tuberculosis and organic heart disease.

Kober and Hanson[25] state that:

The connection between fatigue and disease is probably much more frequent and close than is usually recognized. To disease, fatigue stands in the relation of both cause and effect. That it may be a facor in causing disease is indeed often believed, and this belief is justified by laboratory experiments. Thus, it has been shown experimentally that of two groups of animals, the one resting and the other fatigued by muscular work, and both inoculated by pathogenic bacteria, the fatigued animals exhibit a fall of the opsonic index and succumb to the disease in larger numbers. . . . If this is true of one species of bacterium it is probably true of others, and from the prevalence of infectious diseases in the life of man it is obvious how important is the matter of avoiding undue fatigue. . . . Outside the realm of infections, fatigue as a causative factor in disease is perhaps most obvious in neurasthenia; the nervous system is the primary seat of the preceding fatigue process. . . .

Industrial overwork often occurs and puts the worker into a physical condition, at present difficult to recognize by any specific test, wherein his physiological mechanism is in a state of depression and ready to fall a prey to specific maladies. Treves speaks of this as not presenting a well-defined morbid picture; but it is a slow deviation, often obscured by its very slowness, and predisposing to illness of any nature; it is the borderland of illness.

Lee[26] states that:

In connection with the great prominence of industrial disease in the life of today, fatigue must be recognized as one of the chief factors. Several years ago . . . a valued friend of mine, one of the leading American pathologists, expressed to me his firm conviction that in the course of time fatigue would be recognized as one of the main causes of disease; and Sir James Paget is quoted as writing, "You will find that fatigue has a larger share in the promotion or transmission of disease than any other single causal condition you can name." Here may be mentioned an instructive research by Abbott and Gildersleeve (Influence of Muscular Fatigue and of Alcohol Upon Certain of the Normal Defenses), who found that when rabbits were inoculated with pathogenic bacteria and were then fatigued by running several hours each day in a wheel, they died; while other rabbits, inoculated, but not fatigued, survived. With the fatigued rabbits, the opsonic index . . . was gradually reduced as the fatigue progressed. Cessation of the fatiguing process for even a day resulted in a partial recovery of depression in the opsonic index. The bearing of such an experimental result on the causation and prevention of infectious diseases in industrial work is sufficiently obvious.

Vernon,[27] who stated that "one of the most important contributory causes of sickness and of the loss of working time is fatigue rising directly from industrial work," tested this statement on a large scale in three national shell factories. In each case the time lost from sickness varied according to the hours worked and the consequent fatigue. The factories were grouped together, giving the figures in the accompanying tabulation.

Time Lost According to Hours of Work

	Men			Women		
Hours of work	68¼	62	54	62	54	44
Per cent. of time lost in sickness	7.0	5.7	4.0	6.4	4.3	3.1

Legge[28] writes:

Application of the experimental methods chiefly carried out in this connection by Professor Kent on industrial fatigue will throw a flood of light on this class of occupational disease, and, perhaps by suggesting alternation of employment, render the outlook in regard to them more hopeful than I see it now. What wonder is it that the twister in the cotton trade who, by a dextrous twist of his fingers, joins up 8,000 threads per day at his prime finds his earning capacity reduced when, day after day and year after year in repeating this movement, his fatigued fingers can join up only 600. And I believe that the problems which have already been gone into so elaborately in regard to the effects of artificial humidity and other causes upon health will have to be revised in the fresh light which can be brought to bear from the study of industrial fatigue.

Vernon,[27] again, has observed that:

There can be little doubt that in many cases fatigue is a predisposing cause of sickness, even if it is not the direct and immediate cause. Fatigue may impair digestion, and therefore interfere with the adequate nutrition of the body. Vitality is lowered, and the system becomes more liable to bacterial infection. Professor Fisher, when discussing the effect of the long working day on the health of workmen, says, "A typical succession of events is, first, fatigue, then colds, then tuberculosis, then death."

Sir Arthur Newsholme[29] says:

Overfatigue is a contributory influence similar to ill nutrition, in which the toxic effect of the products of fatigue replaces the effect of inanition; and, in context with overfatigue, it is convenient to group the ordinary occupational disadvantages which combine with overfatigue to lower the inhibitory powers of the workers, favoring catarrhs, rousing into activity foci of infection, which may have remained latent in the bronchial or other lymphatic glands for many years. . . . Overfatigue probably causes a much larger number of attacks of tuberculosis than malnutrition; and much of the excess of pulmonary tuberculosis among men as compared with women is due probably to this. It is not suggested that there is not abundant infection in the workshops, nor that the dust of workshops is not largely responsible for the result under consideration. If a reliable test for the limits of physiological fatigue were applicable, which would eliminate the element of personality in the testing, and would enable work to be given in accordance with individual fitness, much avoidable disease might be prevented. At present we are without any such test, capable of being used in practical life.

Malnutrition, so often cited as a causal factor in the development of tuberculosis, is in turn frequently the result of overfatigue, according to Emerson,[30] who gives it as third in importance as a cause of malnutrition.

25. Kober, G. M., and Hanson, W. C.: Diseases of Occupation, Philadelphia, P. Blakiston's Son & Co., 1916, pp. 255, 256, 259.
26. Lee, F. S.: The Human Machine and Industrial Efficiency, New York, Longmans, Greene & Co., 1919, pp. 79-81.
27. Vernon, H. M.: Industrial Fatigue and Efficiency, London, 1921, pp. 143-146.
28. Legge, T. M.: Industrial Administration, pp. 96, 97.
29. Newsholme, Arthur: The Prevention of Tuberculosis, London, Methuen, 1908, p. 177.
30. Emerson, W. R. P.: Malnutrition and Tuberculosis, Tr. Nat. Tuberculosis A. 17:539, 1921.

Not all voices are in accord with this view of fatigue as a strong contributing factor in the etiology of disease. Oppenheimer and Spaeth [31] found that "fatigue, artificially induced in white and hooded rats by forcing them to run in motor driven drums, apparently tends slightly to increase their resistance to subcutaneous injections of tetanus toxin. . . . These results contradict the popular belief that a fatigued individual is more susceptible to disease (tetanus toxin and pneumococcus infection) than a nonfatigued individual."

Fisk [32] maintains that sickness is wrongly treated as the result rather than the cause of industrial fatigue.

The sense of exhaustion which persists often for many weeks or months following an attack of influenza is an example of fatigue as the effect rather than the cause of disease. On the other hand, exhaustion due to physical labor or mental stress or both is widely recognized as the contributing factor in such infections as furunculosis. For a period of two years or more after an attack of influenza, I was able repeatedly to predict the appearance of a furuncle from twenty-four to forty-eight hours after the symptoms of severe exhaustion. Immediate rest in bed appeared occasionally to abort a furuncle. Pneumonia as a complication during convalescence from exhausting injury or illness is a not uncommon observation of the general practitioner.

Paraphrasing Kober and Hanson, previously quoted, may we not say, If this is true of one species of bacteria, such as the staphylococcus, it is probably true of others, such as the tubercle bacillus, which, like the staphylococcus, is latent in a large percentage of the human race.

REST

Let us consider for a moment the most important of the fundamental factors in treatment—rest. Now thoroughly established as our most potent method of combating active tuberculous disease, it is nevertheless an empiric method. What is the rationale of prolonged rest treatment? Is it merely to slow respiration and circulation? Is it to relieve physical exhaustion and to conserve strength? Is it to bring about mental tranquillity? Is it to improve nutrition? Certainly, in the beginning of treatment rest is prescribed for the reduction of the pulse rate and febrile temperature when fever exists.

Mere physical exhaustion is recovered from in a few hours or a few days. Many patients with active tuberculous disease are not undernourished; but when poor nutrition exists, then rest and the other fundamentals of modern treatment, fresh air and good food, are essential.

Exhaustion from the toxins of tuberculous disease, especially if complicated by mixed infection, may need many weeks for restoration. Rest is essential, that the effort to wash out these products of bacteriologic activity may not be retarded by the products of combustion due to physical effort.

On the other hand, the exhaustion of fear and worry, which may be either the cause or the effect of tuberculous activity, may not be dispelled by bed rest but is relieved by controlled occupational therapy,[33] a useful means of securing mental rest. Kober and Hanson [34] point out that:

> During rest there is opportunity for the excess of carbon dioxid, lactic acid, and whatever other fatigue substances may be present, to be eliminated from the fatigued tissues and from the body. The carbon dioxid is passed out of the body through the lungs, while the other fatigue substances probably either pass out unchanged in the urine, or are broken down into simpler substances before being discharged. At the same time rest gives the opportunity for rebuilding within the cells the substances that are necessary for further activity.

The large percentage of those patients discharged from sanatoriums as having the disease in a quiescent or apparently arrested form, who subsequently break down, presents a serious problem. The causes are not alone undue physicial exertion. They are all those factors that contribute to fatigue: faulty diet while under treatment leading to a fat and flabby condition of the muscular system, with resultant disturbances of metabolism; failure to secure a period of hardening up by carefully supervised graduated exercises which are themselves a means of acquiring resistance to fatigue; [35] a return to the same domestic and industrial conditions under which the disease first became active; dread of the slumbering fires of reinfection or reactivation.

Unfortunately, so far as I am aware there exist no valid quantitative tests [36] for cumulative fatigue, nor have we any readily applicable measures of vital capacity by which we may have a guide for the wise vocational counsel of the tuberculous. We are compelled to rely on the clinical observations of public health nurses and clinic or private physicians, and on the subjective judgment of the patient to prevent relapses.

CONCLUSIONS

May we not conclude then, from these considerations that there are in the field of tuberculosis research the following worth-while problems:

1. The determination whether or not the "toxic substances" of fatigue are the cause or one of the important causes of the activation of latent tubercle and the manner in which they act.

31. Oppenheimer, Ella H., and Spaeth, R. A.: Relation Between Fatigue and the Susceptibility of Rats, Am. J. Hyg. **2**: 51 (Jan.) 1922.
32. Fisk, E. L.: Fatigue in Industry, Am. J. Pub. Health **12**: 212-217 (March) 1922.
33. Pattison, H. A.: Occupational Therapy and Vocational Guidance for the Tuberculous, Mod. Med. **2**: 10 (Jan.) 1920.
34. Kober, G. H., and Hanson, W. C.: Diseases of Occupation, p. 254.
35. "With moderate exercise there is no evidence that any other substance than carbon dioxid is formed, but with violent exercise lactic acid is also produced. A variety of experiments indicates that lactic acid appears with a relative deficiency in the supply of oxygen to the contracting muscle. The copious intake of oxygen that accompanies exercise would tend, therefore, to reduce the lactic acid formation. Respiration is essentially a gaseous exchange and takes place primarily in the cell. For these reasons, and since muscle in an atmosphere of pure oxygen does not fatigue as soon as in an atmosphere of nitrogen, and a muscle stimulated to exhaustion in an atmosphere of nitrogen recovers quickly in pure oxygen, it would appear that the presence of oxygen tends to push back the fatigue-point. All of this suggests the value of volumes of fresh air in delaying fatigue and of furthering recovery when fatigue has set in."—Swift, E. J.: Psychology and the Day's Work, New York, Charles Schribner's Sons, 1919, p. 171.

"Physical exercise as a means of acquiring resistance to fatigue has received too little attention, and the value of medicine has been overestimated. It is well known that a man in training has greater endurance than one who attempts exertion without previous systematic exercise or training. In general, it may be said that a person in the pink of condition is fit not only for physical but also for mental exertion. . . . The great majority of adults are far from being in condition, suffering either from lack of exercise or from too much exercise. . . . Could these conditions be remedied, endurance, as measured by capacity to withstand prolonged strains, might be greatly increased.

"'Experiments have shown that physical endurance can be doubled by dietetic causes alone, or doubled by exercise alone. By both together it is not unlikely that it could be tripled or quadrupled. . . . It is not meant that the hours of his daily work, or even his daily output of work, could be increased in such a ratio. What it does mean is the removal of the fatigue limit, a freer and more buoyant life, and a visible increase in the quantity and quality of work per hour. In an ideal life, fatigue would be seldom experienced. But in most lives, unfortunately, fatigue is a daily experience'" (ibid., pp. 174-175, in part quoting Fisher, Irving: Bull. 30, Committee of One Hundred on National Health).
36. Spaeth, R. A.: Prevention of Fatigue in Manufacturing Industries, J. Indust. Hyg. **1**: 447 (Jan.) 1920.

2. The development of satisfactory, easily applied tests or clinical guides for determining cumulative fatigue.

3. The further study of occupations for the tuberculous with reference to those features of employment producing mental and physical fatigue.

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ABSTRACT OF DISCUSSION

DR. ROBERT A. PEERS, Colfax, Calif.: Fatigue in its relation to tuberculosis should be considered mainly from three points of view: (1) its significance in causing activity in inactive lesions; (2) its significance after the activity has been well established, and (3) its relation to the arrest of the disease. Dr. Pattison stated that infection by the tubercle bacillus is practically universal, and yet approximately only 2 per cent. of the population become actively tuberculous. Why? Our experience has been that the factor which causes the 2 per cent. to break down is what Kraus terms strain, which, in a majority of cases, means fatigue. The most important factors that cause this breakdown are overwork, overplay, overdissipation, excessive nervous strain, or a combination of two or more of these factors. It is not so important to the tuberculous patient how we define fatigue, or in what manner fatigue works, but it is important to everybody—especially to the individual who is infected but has not broken down—to know what leads to the breakdown. As to the significance of fatigue after tuberculous activity is well established, fatigue acts as a cause and as an effect of the toxic products that come from the active lesions which have been stirred up. It has been said also that industrial fatigue is the result rather than the cause of disease. I believe that fatigue is both the cause and the result. Then, as to the relation of fatigue to the arrest of the disease, Dr. Pattison said that rest is the most important fundamental factor in treatment. The value of rest cannot be overemphasized. The very fact that rest, which is the antithesis of fatigue, is the most important factor in the backward movement from active tuberculosis to inactivity is proof of the great part played by fatigue in the development of tuberculous activity. Rest reduces the factors that caused the breakdown and caused the fatigue, and is also breaks up the vicious circle of fatigue in the infected individual. One thing more: If we want to reduce the incidence of tuberculosis, that 2 per cent. of actively tuberculous, to a minimum of less than 0.5 per cent., we must not only lend our efforts to the prevention of the transfer of the tubercle bacillus from the sick to the well, but adopt proper social and industrial measures which will help to eliminate, so far as possible, the element of fatigue from the lives of our citizens.

Causal Factors of Juvenile Crime.—The number of criminal children who themselves possess criminal parents or criminal relatives is, after all, comparatively few. And, even here, small evidence exists to establish that the criminal propensities of the family have been transmitted to the offspring by direct biological inheritance. Other causes, less hypothetical in character, more obvious in their mode of operation, can often be elicited; and their removal, with immediate and entire success. Many of these provocative conditions were manifestly due to the moral laxity of the parents themselves. The only cases in which the vices of the child stood in a direct and apparently hereditary relation to the vices of the parent belonged to specifically limited types—namely, sex delinquency (by far the most frequent), and a few instances of wandering, violent temper, and impulse stealing. Of these every one may be accounted for by a simple assumption—by supposing that certain human instincts, which by their very definition are acknowledged to be inherited, may be inherited in differing degrees of natural strength. But even here the instinct is not itself inevitably a criminal one; and once it is afforded some legitimate outlet in social activities or wholesome recreation, its manifestations can be diverted from illicit enterprises, and directly into lawful channels.—Cyril Burt: *rit. J. M. Psychol.* **3**:14, 1923.

ROENTGEN-RAY THERAPY TWENTY YEARS AGO*

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As I see, now and again, reports on treatment of various diseases with roentgen rays and radium, my mind reverts to the time, twenty years ago, when we were learning the therapeutic use of roentgen rays. It has been interesting to me to compare the results then with the results now, and I thought it might be interesting for us to look over some of these old results and compare the present with the past in this field.

I began the therapeutic use of roentgen rays, Feb. 1, 1900, in a case of hypertrichosis. Soon after, in treating a case of hypertrichosis, I was amazed to see a bad acne clear up. In May, 1900, I treated my first case of lupus. In December, 1899, Stenbeck had demonstrated before the Swedish Medical Society a case of cured epithelioma, and about the middle of 1900, Johnson and Merrill had published the report of a good result in America. In January, 1901, I treated my first case of epithelioma. By the middle of 1901 I began to treat carcinomas of the breast. The results, except in the case of hypertrichosis, were so astounding that it was evident that we had a new principle of therapeutics of enormous potential usefulness in some of our gravest diseases. Naturally, the agent was given a trial in a wide range of cases.

THERAPEUTIC INDICATIONS

I believe that I may affirm with truth that I did not use the agent blindly and without a working hypothesis. I had taken up the use of roentgen rays after an evening spent with Freund in Vienna, when he explained his apparatus to me (although I never saw it), his technic, and his therapeutic indications. I shall always remember with gratitude the generous way in which he gave me the benefit of all his experiences and his technic. On the basis of Freund's generalizations on the therapeutic use of roentgen rays I elaborated a set of therapeutic indications for their use which has always been my guide. These therapeutic indications, which I published in 1903, were as follows:

1. To remove hair: (*a*) hypertrichosis; (*b*) sycosis; (*c*) favus; (*d*) tinea tonsurans; (*e*) tinea barbae.
2. To cause atrophy or diminution in size or in functional activity of the sebaceous glands: (*a*) comedo, acne, acne rosacea; (*b*) lupus erythematosus (?); (*c*) seborrhea.
3. To cause similar effects on sweat glands; (*a*) hyperhidrosis.
4. To cause exfoliation of the nails. (This was included for completeness.)
5. To destroy bacteria in living tissues. (This is the only indication that proved inaccurate.)
6. To stimulate tissues on the skin: chronic indurated eczemas, lupus erythematosus, lichen planus, psoriasis, and all of the chronic inflammatory diseases of the skin on which we use stimulants.
7. To destroy tissues of low resistance without destruction of their healthy stroma, the basis of their usage in all sorts of neoplasms, in granulomas and in lymphoid tumors.
8. Their anodyne effects—in neuralgias and itching dermatoses.

Of course, these therapeutic indications are very broad. I think it would be surprising to one to see how nearly these therapeutic indications of more than

* Read before the Section on Dermatology and Syphilology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

twenty years ago give reasonable working indications for the rational use of the agent, and how completely they include all of the suggested uses of roentgen rays which have since been developed. They include, as fully, the therapeutic indications for radium. Indeed, in his book, Simpson has used them as being the therapeutic indications for the use of radium. As a matter of fact, when I undertook to publish a book on roentgen-ray therapeutics, they enabled me to survey the subject with system and to discuss, not only what had been done with roentgen rays, but various things that might be expected to be done with them. I trust that my enthusiasm for these indications will be pardoned. It comes from the fact that they have stood me in such good stead. They still furnish me therapeutic indications. I claim very little credit for them. Nearly all of the credit belongs to Freund, who first elaborated them.

Most of the things that the treatment was tried on then are suggested by the therapeutic indications:

Hypertrichosis, tinea, acne and hyperhydrosis among the diseases of the appendages. I bought a duplicate of Freund's machine in the summer of 1899 for the specific purpose of treating hypertrichosis. I began the treatment of my first roentgen-ray case, one of hypertrichosis, in February, 1900. I see that woman to this day, after twenty-two years. She has never ceased to be grateful for the result, and I think it is the best result I ever got in hypertrichosis. I treated many subsequent cases, but ultimately gave up the method.

Eczemas, psoriasis, lichen planus and lupus erythematosus were all treated then with about the same results that we see now. I have shown the early results in lupus and blastomycosis. I have had few results in lupus since as good as those.

The cases of epithelioma that I have shown [1] illustrate fairly both in the successes and the failures the sort of results we got then. I am sure that I have had no better results since. Now I can treat superficial epitheliomas, and epitheliomas in inaccessible locations, more conveniently with radium than I was able at that time to treat them with roentgen rays. But I think the cases illustrated of lesions treated about the eye show that by taking trouble we could treat lesions anywhere on the skin with roentgen rays. I have used radium a great deal since in epitheliomas, but when I get in a desperate situation with an epithelioma that must be smitten, and smitten hard, I still prefer in most cases to rely on roentgen rays. A patient with an epithelioma of the lower lip, treated in 1902, lived seven or eight years, and died of an apoplexy without a recurrence. From that time to this I have treated hundreds (I have not lately made a count of them) of epitheliomas of the lower lip with roentgen rays. I have selected my cases, turning over the deep nodular infiltrations of the lip to the surgeon. But with selection of cases I can say that I have never had an occasion to have my conscience hurt me because of this method of treatment. I can hardly recall a case in which I had a right to expect a successful result in which I was disappointed. A man whom I treated for a prickle cell epithelioma of the nose with a good result, in May, 1901, has not had a recurrence to the present day, and has had throughout life a normal looking nose instead of an amputated one. Since that time I have treated many prickle cell epitheliomas with roentgen rays. They are more resistant than basal cell, but I had no hesitation, and still have none, in treating them. And I have never accepted with humble patience the statements that are reiterated that prickle cell epitheliomas cannot be destroyed with roentgen rays. As a result of my experience of twenty years ago I have long been convinced that roentgen rays or radium should supplant operation in the treatment of epitheliomas of the lids.

In carcinoma of the breast I think I have never seen as brilliant a result as in the third case I ever treated, in November, 1901. I have had the same sorts of results in recurrent carcinomas throughout my experiences; many symptomatic cures of the lesions or the chest wall; sometimes disappearance of lesions in the axilla and supraclavicular space; some permanent results, but, unhappily, few that have been permanent. In sarcoma, pseudoleukemia and leukemia the results were the same as we get now. I could remove then deep masses of connective tissue tumors. I saw twenty years ago a spleen as big as a watermelon become almost or quite impalpable, with corresponding improvement in the blood picture. Many years before the present intensive deep therapy, I saw patients with the abdomen like a nine months' pregnancy from uterine myomas, almost exsanguinated from hemorrhage, cleaned up and put on their feet with the old roentgen-ray technic.

There was one condition which I first treated with roentgen rays at the suggestion of Drs. Casey Wood and Frank Allport, for which I had no therapeutic indication, and have none yet, and that is vernal conjunctivitis. That hitherto utterly intractable condition I was able to get rid of permanently, and subsequently the treatment has proved successful by a similar use of radium, which is vastly more convenient for irradiating the inner surfaces of the upper lids.

Comparing the results of today and twenty years ago, I should say that, as a whole, the results were as good. In some conditions they were obtained with less regularity, and always with more difficulty to the operator, and often to the patient. In the treatment of acne I think my results were quite as good as they are now. But they required infinite pains and care, without the assurance that I feel of results today. In sycosis, my results were as good then as now. In chronic inflammatory diseases I see no difference in the results, and none in blastomycosis. In lupus, my early results, if anything, were better than my later ones. In epitheliomas, I see no difference in the results or in the regularity with which I get them.

TECHNIC

The technic which I used in those days, and continued to use until within a few years, was the old Schiff-Freund technic. I gave repeated exposures at short intervals, relying on the smallness of the quantity of roentgen rays in each irradiation in order to prevent a serious burn when the accumulated effect had produced an erythema if it was carried to that point, and, on the other hand, on the amount of roentgen rays which could be given in this way without danger in order to get the quantity through accumulation that was necessary to produce results. I was always afraid of soft tubes, and never felt happy with a tube until it was pretty well blackened up and pretty hard. I relied on

1. Lantern slide illustrations of cases were shown with the presentation of the paper. These are not reproduced because they were all long since published.

the hardness of my tube to get deep effects rather than on the filters. When I have used filters I have always used aluminum, nearly always of 1 millimeter. But for epitheliomas I have rarely used screens, and for affections like acne in which I want a superficial effect, I have practically never used them. In the early days I used to give many exposures in order to get an effect in any condition. In an epithelioma I would give ten, twenty or thirty exposures. As I acquired more confidence, however, I got so that I could treat an epithelioma often in three or four exposures given in the course of four or five to ten days. That technic, of course, was tedious and difficult. It required long practice on the part of the operator in order to carry it out. As a matter of fact, although many an assistant at different times did the work, most of my roentgen-ray work was done by the same assistant.

The new technic of MacKee and Remer and Witherbee is, in convenience and accuracy and ease of application, incomparably better than the old technic that I used. In my hands it has proved everything, it seems to me, that could be desired in the way of accuracy and convenience. It has the enormous advantage that it does not require years of training to carry it out. When one is used to the set-up, the exposures can be given by any careful intelligent assistant who has had a short training. And to my mind it is the one great addition to the therapeutic use of roentgen rays that we have had. There is still, however, I believe, the same use for judgment in the quality and quantity of the exposures that is an essential of all technics.

In the quality of the results with the new technic I see little difference. The only place that I see a distinct advantage in the new technic is in the treatment of conditions in which one must avoid burns or be sure of staying on the side of safety, such as in acne, tinea tonsurans and inflammatory dermatoses. As respects acne, MacKee's technic is a vast improvement. One treats the patients in a fairly definite time with more assurance of success and with less danger of damage. In tinea tonsurans, of course, the exact methods of measurement, of which MacKee's is the best, have made the treatment practicable. I have seen very little tinea tonsurans in private practice, and I treated none in the early days, as far as I remember. But I have no doubt I could not have treated it with the success of today.

Burns and chronic roentgen-ray atrophy are, of course, the nightmares in the use of roentgen rays and radium. It seems to me, by the way, that since the intensive therapy has come in I have been asked to see more roentgen-ray burns now than I ever did. When I began the use of roentgen rays in 1900 I knew the dangers of burns and I guarded against them with all the care and intelligence that I could bring to bear on the problem. As respects burns, I have been lucky. In some of my successful acnes there was a good deal of scarring, perhaps more than would have occurred without the use of roentgen rays; but of this I am not certain. None of the patients, so far as I remember, ever complained of it. As far as I know, no acne patient ever developed telangiectasia or distinct roentgen-ray atrophy. In some of my early hypertrichosis cases there was considerable crinkling of the skin, but in none of them, as far as I know, did any great amount of telangiectasia develop. In cases such as tuberculous glands of the neck, cases treated for carcinoma of the breast or after carcinoma of the breast, and in other similar conditions, I have had develop many areas of extreme telangiectasia. But in the hundreds of those cases I have seen hardly more than one or two epitheliomas, and I recall only one in which an epithelioma developed which gave me any anxiety. In one case of a young girl treated for tuberculous glands of the neck, I had bitter complaint because of the slight telangiectasia. I had one burn 1½ inches wide and perhaps 4 inches long develop on a woman's chest wall whom I was treating with what was understood to be dangerous vigor for a carcinoma in the mediastinum. I have had one roentgen-ray burn half the size of the little finger, which occurred in the treatment of a lupus of the face and which was excised on account of the pain. I have had one ulcer in a slight roentgen-ray atrophy on the forearm of a man treated for psoriasis, which was excised because we thought it was dangerous. These are the only accidents that I recall; and one remembers pretty vividly those accidents. Not one of my assistants has ever developed any chronic roentgen-ray changes.

In short, while I have admiration for and pleasure in my new tools, and am perhaps working more deftly, I look back with satisfaction, and, indeed, some affection, on the old, and am rather ready to defend them.

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ABSTRACT OF DISCUSSION

DR. EVERETT S. LAIN, Oklahoma City: After Dr. Pusey published his work in 1903, showing what might be accomplished, I went to Chicago, and Dr. Pusey showed me his cases. I went home and tried, in the best way I could, to emulate his work. I have in my files many cases of epithelioma treated with roentgen ray in 1903, 1904 and 1905, and the patients are still living. I also have cases of acne cured with the roentgen ray in 1903, 1904 and 1905, and the results as regards telangiectasia and atrophy of the skin were no more common in my work at that time than they are at present.

DR. HOWARD FOX, New York: Dr. Pusey was the first in this country to do this work in connection with skin diseases. The wonderful results he showed in epithelioma and lupus could not be surpassed at present. He was able to obtain these results, however, on account of his own particular genius in this field. The average man could not have obtained such results with the old unmeasured technic. Since the introduction of modern apparatus, the technic has become not only simpler but also much safer, and its knowledge can be passed from one to another.

DR. FRED WISE, New York: Having had considerable experience with both the old technic and the new, I think I can say without hesitation that the results obtained with the old method were as good as those with the new, modern method, especially in the hands of men who, like Dr. Pusey, exercised a considerable amount of care and judgment; but certain facts must be brought out in favor of the modern, or MacKee and Remer, method. When many cases are treated in a clinic in one afternoon, the time factor is an important thing. In many of the cases Dr. Pusey showed I have no doubt the patients received many times, probably twenty times, as much roentgen ray—I mean the measured time—that we use now. This means a lot in the time factor. Another factor lies in the treatment of favus and ringworm of the scalp. If roentgen therapy were a cure for those two conditions alone, it would be of great value in the treatment of skin diseases in the large cities. I do not know whether Dr. Pusey ever attempted to epilate ringworm and favus by the old method, but the results in regard to therapeutic epilation were usually poor. With the so-called MacKee method we are sure of what we are doing, and we know that if we

give a certain amount of roentgen ray to children's scalps, we are not giving too much.

Dr. Henry J. Ullmann, Santa Barbara, Calif.: It requires an artist to paint a picture; it is not a measured, scientific thing. In the early days, the success of roentgen-ray therapy was due to the fact that it was an artist who used the roentgen ray. The following experience may help the younger men to appreciate some of the conditions under which Dr. Pusey and his associates worked: As late as 1920, when I first started my voltage measurements, I found variations as great as 20 per cent. below to 21 per cent. above the voltage the operator, with the point gap method of measuring, supposed he was using. Think what that means in the effect on the skin. When we think of all the unstabilized factors entering into his work, we shall realize what an artist Dr. Pusey was.

Dr. William Allen Pusey, Chicago: Everything that has been said about the precision and the enormous increase in practicability of the new method is true. I tried to emphasize that as much as possible in the remarks I made. There can be no doubt about the wonderful time-saving value of the new technic; but what I had in mind was that we could accomplish results in the old days if we used patience and care. Another important thing is one's assistants. What the results might have been if I had had to change assistants I should not like to contemplate. I could depend on my assistant and knew that she could carry out these things, so that I felt safe. I have the greatest admiration for the work of MacKee, Remer and Witherbee. It is the greatest advance I know of. I did not treat ringworm in the old days, and I could not treat acne as I do now. I had to tell the patient that she would have to be available for six months. But the point I tried to make was that we could get results with the old method and that we should not forget the good old days.

THE PSYCHOLOGY OF THE NORMAL CHILD *

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The mind of the child differs from that of the adult quite as much, and in much the same way, as his body differs from that of the adult. Certain traits are his at birth and are modifiable only to a slight degree; on the other hand, changes for good or ill can be wrought in his mind which are as marked as are the changes sometimes seen in the bodies of certain primitive peoples who mold heads and alter features after a marvelous fashion.

Every child comes into the world with a set of tendencies transmitted through the ages from two long lines of ancestors. He is what he is largely because of his family, his sex and his race. Education may do much to develop small or latent powers, but nature has set definite limits for each individual beyond which he cannot go. It is futile to try to develop qualities of which there is no inherent trace and foolish to believe that tastes and abilities not ingrained can be created. Few human beings come near to the best use of all their faculties. Numerous accounts are available of accidents which have made necessary a complete change in the manner of living and have thus forced the development of latent and hitherto unsuspected powers. As one victim of an industrial accident remarked, he had to lose an arm to learn that he had a head. It is the function, then, of the environment to select and stimulate desirable qualities and to control and direct all. To educate a child in the true sense, it is imperative, first of all, to understand his native equipment and then to know all of the laws by which modification may take place.

Beside these inherent factors, which must be reckoned with throughout the life of the individual, there are certain other characteristics which belong to him because he is a child and not an adult and which are altered or lost with the passing years. First, and of utmost importance, is the fact of youth. Every healthy child is an investigating, experimenting, growing being, tingling with energy and with a dynamic vitality which embraces all about him and insures that he will develop and will respond to all of the experiences which come to him, regardless of their social value. Because of fresh youth, his organism is receptive and plastic and his habits begin to form even in the earliest days of life. The child cannot help forming habits; it is in the very nature of his nervous system to do so. Muscular habits develop, the disposition is formed, largely as an imitative process, and emotional attitudes, manners and morals all have their foundation in the early years. Habits of care of the body, of carriage and posture, of speech, formed during childhood, can seldom be broken, and such accomplishments as the learning of foreign languages, skill with certain musical instruments, or acrobatics must be acquired in youth if at all. The old adage says truly, "Let the child run until he is 6 and you never can catch him."

Among the natural endowments, there are certain instinctive tendencies, shared in greater or less measure by all persons, and appearing most prominently in childhood. McDougall names seven primary instincts, associated with corresponding strong emotions, which play an important part in the development of character. Some of these may have very undesirable aspects and need direction from their first appearance; most of them have decided elements of value; all can be made more useful socially by control. The seven primary instincts with their corresponding emotions are: (1) flight, associated with fear; (2) repulsion and disgust; (3) curiosity and wonder; (4) pugnacity and anger; (5) self-abasement and subjection; (6) self-assertion or self-display with elation, and (7) the parental instinct accompanied by the tender emotion. Besides these there are many more general tendencies, such as gregariousness, imitation, play and acquisitiveness, which are inherent and important, but the consideration of which is beyond the scope of this paper. Discussion of instincts here will be confined to those mentioned above.

In the child's life, fear is irrationally excited by many things, such as darkness, solitude, unexpected movement in objects, sudden loud sounds, or unfamiliar experiences. Fear, once established, haunts the mind and recurs again and again both in dreams and in the waking hours, often showing its effect throughout life as an inhibitor of action and a disturber of equanimity long after conscious memory of the fear-inspiring cause has been lost.

Repulsion and disgust appear early, and often suddenly, in children, and are associated with such experiences as disagreeable tastes, offensive odors, and slimy or furry things. The instinct of repulsion and disgust, as do most of the others, seems to appear at different ages in different persons and tends to change later, often disappearing in relation to certain objects. The repulsion for furry things, relatively common in young children, usually disappears entirely after a year or two. This suggests that, for the control of reactions

* Read before the Section on Diseases of Children at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

resulting from instincts, it is important to recognize them, to realize their significance as they appear, and to direct and control them as they develop.

Curiosity is especially marked in children and shows great individual variation. When prominent, it becomes even stronger through exercise, but weak from disuse. Though directed at random in the child toward objects both trivial and important, it results in the expenditure of tremendous mental effort and can be regarded as responsible for much of the scientific and philosophical progress of civilization.

Pugnacity and anger appear very early in life and ordinarily serve to overcome opposition to the free use of other strong impulses. Important sources of reserve energy are brought into play by pugnacity, and, when rightly directed against difficulties which obstruct the way, it has great social value.

Self-abasement, in the presence of a supposedly superior person, is common with children, and the standards of conduct of admired persons are sure to have a large effect on the child's developing character. On the other side, there is the tendency to self-display, important in all children, and associated with a craving for approval and admiration. It depends on those in authority over the child what traits shall be regarded as admirable, and if the child has opportunity for self-display along desirable lines, this almost universal tendency may be entirely satisfied in a manner which is socially useful.

Lastly, the parental instinct and the tender emotion are very strong in most normal children and show as a tenderness toward weak and helpless things and a dislike for suffering. Many children are sheltered from the sight of suffering and unhappiness, and some persons may even go through life with eyes averted from any spectacle involving suffering. The tender emotion is probably the basis for most of the disinterested and altruistic good in the world.

Besides the instincts, there are the affective states, the dislikes and fears, and the pleasures and satisfactions, which are coming to be regarded as making up a large part of the character or the personality of the individual. Early in life the child shows displeasure or fear of pain, bad tastes and smells, slimy things, solitude, disapproval and many other experiences; while sweet tastes, glitter, color, motion, rhythm and the like cause unmistakable signs of pleasure or satisfaction. Many of these traits aid in the development of the love of nature, art, poetry and music, and their usefulness for educational purposes is obvious.

In the intellectual field there are differences between the child and the adult, owing to the differences of experience and to what appear to be differences in the power of some of the mental processes. In attention, for instance, intense stimuli are more effective for both children and adults, but adults, largely as a result of practice, can hold the attention to an uninteresting object to the exclusion of others, whereas little children are almost incapable of such mental activity. The ability to force attention to uninteresting things increases steadily up to adult years, partly as a result of increased knowledge. The more we know of a thing, the more points of interest there are in it capable of holding our attention. Hence the attention of the child is usually less intense and of shorter duration than that of the adult. Children also can attend to fewer objects at one time than can adults, and, to be effective, the objects of attention must be simpler for the child. The child attends only to one item, while the adult may attend readily to an entire system of ideas. In the child the mechanical habits of attention are lacking. The adult has learned to do many things almost automatically, as a result of long experience, but the child is only a learner and must attend painstakingly to each particular. The child's attention is sensory and concrete rather than intellectual and abstract. The contacts of the child with the outside world are relatively new and exciting; through his sensory equipment he is acquiring data which will later enable him to reflect. His store of facts at any time is too small to be exclusive of new experiences; hence he goes about seeing, hearing and enjoying every detail of his surroundings, whereas the adult, with his mind engrossed in his thoughts, is often entirely oblivious of much in his environment.

Memory is a faculty in which both nature and training are of great importance. Immediate memory is known to be inferior in children and to improve steadily until about the age of 15. So well has this fact been established that tests of immediate memory are included in most of the intelligence scales now in use. Permanent memory is probably better in children than in adults, and outright memory is a faculty used relatively more by children than by adults. The adult retains new facts by associating them with old, familiar experiences, and he may also reason many conclusions from other elements of his knowledge. The child, from lack of knowledge and experience, is often compelled to depend on memory, when the adult finds other methods more accurate and better suited to his purposes. Poor memory is frequently due also to poor attention, and, since the child's power of attention is inferior to that of the adult, the difference in memory ability is further explained.

The imagination of the child is an important element in his make-up and is often misunderstood. Children's mental images are vivid and real and are likely to contain a large creative element. The child from 3 to 7 years of age may have a rich imaginary life, which tends to become more matter of fact as knowledge of the limits of the possible and contact with other persons increases. Some children find it difficult to distinguish memory from pure imagination and may even fail to distinguish percepts from images; hence the fantastic tales of adventure which children tell before experience has taught them to distinguish the possible from the impossible. Much of the lying of children is due to this confusion, and after a tale has been told and retold the child himself may be quite unable to distinguish the remembered from the imagined. Here his emotions readily help him to make things be as he would like them to be. But the faculty of recognizing the difference between facts of memory and of imagination can be acquired. This distinction is not always clear with adults, as shown by the differences in testimony given by persons trying to give an account of the same incident. Imagination often gives the lonely child imaginary companions, which may become so real as to interfere with his normal association with other children and to deprive him of the give and take involved in the enjoyment of the companionship of actual children.

The thinking of children is characterized by seeming triviality, which results largely from the differences in the problems of the child from those of the adult. The little child, when asked about Lincoln, is likely to respond that he lived in a log cabin or that he got his clothes dirty pulling a pig out of the mud rather than that he was a great president who freed the slaves.

Getting clothes dirty is much more real to the child than the freedom of slaves, about whom he knows almost nothing.

With most persons there develops a moral sense in which intelligence is a factor but which includes also a feeling of the rightness or wrongness of certain acts. This sense, if it may be called that, is relatively late in appearing, and in a few instances seems never to appear. The little child may know from precept that lying and stealing are wrong, but unless he feels a repulsion toward the commission of these acts, he will almost surely lie or steal if there is small chance of unpleasant consequences. The moral conduct of the child is very largely dependent on training and the approval of others; with the adult, self-approval is important.

The discussion of the characteristic mental traits of children must of necessity be brief in a paper of this kind, and many important elements cannot even be touched on; but enough can be brought out to indicate clearly that a child, though bound by the limits of his inherited nature, presents many individual features that are characteristic of childhood. It is the purpose of child psychology to study these features and to seek out all laws governing their appearance and development and of education to select and stimulate desirable traits and to control and, in some cases, to transform or suppress undesirable ones.

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THE SUBNORMAL AND PSYCHOPATHIC CHILD AS EXEMPLIFIED IN SPECIAL CLINIC*

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Within recent years, much attention has been given to the study of subnormal and psychopathic children. This study has been greatly stimulated by the introduction of the various psychometric tests, especially the Binet-Simon tests, by means of which a workable classification and standardization of subnormal children have been made possible. These tests, being psychologic, account for the fact that for a long time the development of this field has been principally in the hands of psychologists and social workers. Now, however, we are beginning to realize more and more that the whole problem is distinctly a medical one, and concerns primarily the psychiatrist, who, in order to succeed, must aline himself with the pediatrician on the one hand, and with the psychologist and social worker on the other.

The whole of life, according to Herbert Spencer, is an adjustment, a continuous adjustment of inner to outer relations, and it is precisely on the plane in which life's inner relations meet the outer ones that human maladjustments occur. Man's mind is at the center and crossing of all those inner relations which Spencer defined as requiring adjustment to the outer world.[1] Psychiatry might, therefore, be broadly defined as the study of the conduct reactions of the individual resulting from his attempted adjustment to his environment.

Man represents the highest product of evolutionary life. Ethnologic study, however, would appear to show that the process of evolution apparently has ceased to function. For many thousand years man has been substantially the same physical being, and this in spite of the fact that he has been widely scattered over the earth and has been subjected to the most varied climatic conditions. This has led to the statement that "man is unchanged in a changing environment." Animals exposed to the cold of the arctics grow furry coats. Man under similar conditions changes little, if at all, physically, but does provide himself with external raiments of such quality as to protect him from the deadening cold. This adaption, then, is external, and implies the possession of a mental capacity for this adjustment.

The nature of an individual's reactions and the possibility of a successful adjustment, therefore, will depend on two fundamental factors: (1) his innate physical and mental capacity for reacting, and (2) the nature of his environment. The interplay of these two factors permits of various possibilities:

1. An individual may be born without capacity for reacting or adjusting, no matter how simple the environment—for example, the idiot.

2. An individual may be born with only a partial capacity for reacting, one insufficient for a complex environment but amply sufficient for a simpler one. For example, a moron may be a failure in a position requiring ingenuity and foresight, but be very successful if called on to do only work of a mechanical or automatic nature.

3. An individual may be well born so far as his capacity for reacting is concerned, but his environment may be such that it tends to thwart or stifle the normal development of his conduct reactions. This is the situation that makes for truancy, delinquency and other psychopathic states.

It is apparent to all, and especially to the physician, that a child's failure to adjust socially—to get along in the world—may be due to a defective physical organism, to an endocrine deficiency or imbalance, or to an unstable nervous system. We are not, however, so apt to appreciate the fact that a great many children become problem cases not because of their heredity, but because of their environment. Certain environments may be as pernicious to the child's mental development as exposure to infectious diseases may be to his physical development.

Therefore, when confronted with a child showing some form of psychopathy, such as delinquency, antisocial behavior, a psychoneurosis, mental defectiveness or retardation, it becomes imperative to determine (1) the innate physical and mental capacity of the child, and (2) the make-up of the child's environment.

A social history might show that a child accused of incorrigibility lived in an overcrowded and insanitary home, located in a poor neighborhood, and that his associates were also delinquents. Is it correct to assume that the incorrigibility can be directly traced to the poor environmental and social influences? We know that a great many children, living under similar conditions, do not become incorrigible and delinquent; instead, they rise above their environment. Just as exposure to infectious disease does not invariably result in contraction of the malady, so exposure to perni-

* Read before the Section on Diseases of Children at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

1. Southard, E. E., and Jarrett, M.: The Kingdom of Evils.

cious surroundings does not necessarily result in the development of a pernicious mental state.

Nevertheless, an unwholesome environment is fraught with the greatest danger to the adolescent boy or girl. How, then, are we to determine accurately the importance of environmental factors in any given problem case? To meet this need, the Psychopathic Institute of the Jewish Hospital of Cincinnati was established. This institute provides the medium for observing the child's social reactions in a normal environment with the same scientific precision as is applied in examining his physical condition. At this place every effort is made to carry out the atmosphere of a normal home. Although on the grounds of the hospital, the institute is housed in a modernized dwelling surrounded by a lawn and playground. The interior arrangements and furnishings are those of the average home. To carry out this idea further, the capacity of the home is limited to twelve children, eight beds being reserved for boys and four for girls.

Before being admitted to the institute, the child undergoes a definite routine examination at the hospital proper. This includes physical, neuropsychiatric, visual, dental and serologic examinations. Special examinations are made as the indications arise. Each examination is made by a member of the staff of the hospital, especially qualified in his particular field. In this way the patient receives the benefit of diagnostic group medicine. The child is then transferred to the institute, where he finds himself in a home. Sundry tasks are assigned, similar to those expected of a child in a normal home. If of school age, he is sent to the public school in the neighborhood. Definite time is set aside for study, and, when necessary, a teacher is provided for additional instruction. Several afternoons a week are devoted to vocational training in the form of bead stringing, sewing, carpentry, weaving, pottery and reed work. These occupations are of direct benefit to the patient and of great importance to those observing him.

The psychopathic and retarded child, who probably has become discouraged through inability to cope with the more or less abstract work of the regular school curriculum, rejoices in his ability to perform manual tasks and to accomplish definite results. Self-esteem is thus unconsciously engendered and a wholesome mental attitude created. Many of these children, as a result of constant failure either at school or in industry, have developed an inferiority complex by the time they are sent to the Psychopathic Institute. This must be overcome before any permanent adjustment can be made. Nothing is more conducive to effort than the knowledge that one has the ability to accomplish or produce something. At the same time, the method and character of the child's performance discloses his potentiality for future industrial training and for social adjustment when he is returned to the world.

Recreation and creature comforts are not overlooked. The effects on the child of clean clothes, clean bed, a clean body, and clean living in general are noted. Various forms of entertainment provided by volunteer social workers, such as outings, club activities, theater parties and athletics also present opportunities to observe the child while at play.

All of these social reactions, including the report from the school, are carefully recorded on special charts and finally correlated with facts obtained from the physical and mental examinations. These comprehensive data serve as a basis for diagnosis and plan of treatment.

The following case reports will illustrate our methods of procedure:

CASE 1.—*History.*—C. C., a boy, aged 11 years, referred to the Psychopathic Institute by the pediatric service of the Cincinnati General Hospital, complained of severe headaches, dizzy spells with and without loss of consciousness, and a speech difficulty so marked that he could hardly be understood. At the age of 5 the boy was kicked by one of his playmates in the testes, and was in bed for about three weeks. The local condition gradually improved, but from this time on the boy suffered from severe frontal headaches, which at times continued for days and weeks. He was unstable, and his feelings were easily hurt. The boy became reticent, not caring to play with children of his own age, and staying in the house a great deal of the time with his mother. The speech defect developed later. Two years ago, the boy was in an automobile accident, and although not injured, his nervous instability had been much aggravated since then. Although at present he is 11 years of age, he is only in the third grade of school. He is said to be normal in arithmetic and in doing mechanical things with his hands, but in other respects he is far below his age. The patient's maternal grandmother was said to be very "nervous" and high tempered. His father is very neurotic. For the last two years, he has had headaches and attacks of vertigo similar to that of the patient. The mother is easily worried and emotionally highly unstable. One sister is also said to be "nervous." The child's past history is uneventful except for the fact that he did not begin to speak until the age of 2.

A general physical examination made at the Cincinnati General Hospital revealed no pathologic findings. Serologic examinations of the blood and spinal fluid were negative. A roentgenogram of the skull showed no evidence of any pathologic condition. The child's condition remained unchanged during his stay at the hospital, and no definite diagnosis was made. The boy was then transferred to the Psychopathic Institute of the Jewish Hospital. One very prominent neurologist who saw the boy at the institute suggested the possibility of a glioma of the brain. Our examination brought to light several facts: 1. It was found that the boy had a highly arched hard palate, an elongated soft palate, and a small, narrow jaw with crowded and irregularly placed teeth. 2. It was noticed that he spoke more distinctly if the examiner did not look directly at him while questioning him. This was so pronounced at various times during the first examination that the examiner felt convinced that the boy could speak distinctly, being prevented from so doing through a feeling of inferiority or some other emotional complex. When, a few days later, the social history was obtained, this belief was further strengthened.

This history showed that the boy entered the public schools at the age of 6. Everything went along smoothly until one day he was caught crossing the lawn of the school after this had been forbidden. The principal, in order to make an example of the child, shook him roughly and threatened to beat him until the blood ran down his legs and to send him to a reform school if he ever did such a thing again. Furthermore, he warned him not to tell his parents what had been said to him or there would be more punishment. The boy went home sick with fear. That night he had a chill and appeared very ill. He was in bed for five days. Finally, the family physician pronounced him well and told him that he could return to school. At the mention of the word school, the boy fainted. His speech difficulty was noticed after this, and finally became so pronounced that he had to be taken out of school.

The following year he was sent back to the public school, and again the speech difficulty became pronounced. At this juncture, his headaches also became very severe. Little by little the symptoms became more marked, so that the child was almost helpless. No one was able to understand him, and to complete his isolation, the headaches began to come at more frequent intervals, accompanied occasionally by dizzy

spells and with loss of consciousness. Following a tonsillectomy, he had a headache that lasted twenty-four days.

Further observation of the boy at the institute showed that temperamentally he was shy, depressed and reticent. In addition, he was highly suggestible and emotionally very unstable.

The diagnosis was psychoneurosis, the headaches, dizzy spells and speech defect being defense reactions against intolerable social conditions to which the child could not or would not adjust. As a result, the patient had also developed a marked feeling of inferiority, a vicious circle thereby being produced.

Treatment and Course.—Mental reeducation was prescribed. The boy's self-assurance and self-esteem were raised through moral encouragement and by showing him that every effort was being made to overcome his speech defect. He was sent to a special school for speech defectives, and orthodontial treatment was instituted. He was praised for every effort he made, with the result that his feeling of inferiority gradually left him.

The boy is now at home. During the last two years he has not complained of any headaches, nor has he had any dizzy spells. He is able to pronounce every letter of the alphabet, and has no difficulty in making himself understood. He is attending school regularly and in every way is leading a normal life.

COMMENT

This case illustrates the necessity of understanding not only the mental mechanism involved in the formation of a psychoneurosis, but also the importance of a good social history and of observation of the psychoneurotic child in a normal environment. In dealing with children we must remember that they cannot express their difficulties concretely. This may be due either to an inability to visualize complex situations or to a poverty of expression or to both. Hence the observer must not only be able to comprehend the child's difficulties but must also be able to express it in terms comprehensible to the child himself.

In this particular case, the social history showed that the child belonged to a family, most of the members of which have very unstable nervous systems. In addition, the child very early in life had been subjected to severe mental trauma. As a result of one of these traumas, he became afraid to return to school. In addition, he was afraid to confide in his parents. Thus, an intolerable situation arose. Subconsciously, the boy sought for a way out of his difficulty. A wish longing developed which was satisfied in a very unexpected manner.

When the boy returned to school, he was in a highly nervous state, being in constant fear that he might inadvertently do something that would displease his superiors. When called on to recite, he became confused and, as is natural in such cases, began to stutter and stammer. This called forth a reprimand, which only tended to heighten the child's nervousness. This condition was further aggravated at home, through the attitude of the mother, who was very impatient with the boy and made no effort to gain his confidence. Instead of helping him with his difficulties, she repeatedly taunted him at his failure in school.

Finally, the child's nervousness and speech difficulty became so marked that the teacher suggested that the boy be kept out of school for the balance of the year, with the hope that a few months of rest would help stabilize the boy's nervous system. This was exactly what our little patient wanted. Here was a way out of his dilemma; his wish longing was satisfied. The following year the boy was sent back to school. This time it was very simple. His stuttering was even worse than the previous year, and again the parents were advised to keep the boy at home. Subconsciously, the boy shouted "Eureka." We must bear in mind, however, that this was not a conscious process. The mental mechanism involved was entirely beyond the child's reasoning powers. He himself accepted his speech difficulty as a natural component of his mental make-up, which in turn produced in him a marked feeling of inferiority. This again in turn produced other defense reactions, which intensified his abnormal mental state. As a result, the child was growing up physically and mentally retarded and unable to cope with his surroundings.

The following case is of an entirely different nature and illustrates another phase of the work of the Psychopathic Institute.

Case 2.—*History.*—R. M., a boy, aged 13 years, was admitted to the Psychopathic Institute because of nervousness, lack of interest and mental retardation. Subjectively, the patient complained of hyperthermia and an abnormal desire for sweets, fats and fluids. The boy had had an uneventful infancy. At the age of 2, however, he became "nervous" and restless, and exhibited a great deal of motor activity. He was considered a "spoiled child." This condition persisted, and at the age of 6 he was diagnosed as feebleminded and committed to a state institution for the feebleminded. Here he remained until he entered the Psychopathic Institute of the Jewish Hospital, seven years later. The patient's father and mother were both living and well. The father's uncle and brother were insane and confined. The mother was of the hyperthyroid type.

Examination.—The general physical and mental examinations were negative except for the fact that there was a marked endocrinopathic state, the boy being 42 pounds (19 kg.) overweight. The skull was macrocephalic, being 23½ inches in circumference. The face was acromegalic in type, and prognathism was pronounced. The whole body had a feminine contour, as shown by well developed breasts, a broad pelvis and knock knees. The hands and feet were large. There was marked pigmentation all over the skin, which was oily and gave the white line on being stroked. There was also the feminine distribution of hair over the pubis.

Basal metabolism tests showed great variation under similar conditions, the readings ranging from −30 to + 95 per cent. Roentgen-ray examinations of the skull showed a large, shallow sella turcica. The posterior clinoid processes were not visualized. The blood Wassermann test was negative.

The patient's mental make-up paralleled his physical or, rather, endocrine, make-up. He was effeminate in action as well as in build. He exhibited a placid temper, was sanguine, tractable, neither alert nor dull, and emotionally very stable.

The diagnosis was adiposogenital dystrophy, associated with mental retardation.

Treatment and Course.—The boy was given extract of the whole pituitary gland in gradually increasing doses. Occasionally, thyroid extract was added. There has been a steady mental improvement. The boy was not permitted to return to the institute for the feebleminded; instead, he was placed in the opportunity class of the public school. Here he was the honor pupil, and, as a result, was transferred the following year to the regular class at the school, where he has been doing very satisfactory work. During the last vacation, the boy earned $55 delivering ice. He solicited his own customers and kept his own accounts. A copy of his bookkeeping system is on file at the Psychopathic Institute, where he still reports regularly. This speaks volumes for his potentiality for future social and mental rehabilitation.

COMMENT

It is such cases that make one feel that feeblemindedness is not the hopeless condition that it appears to be. The sooner we discard the belief that feeblemindedness is a distinct clinical entity and adopt the view that it is merely a symptom associated with some underlying constitutional disturbance, the sooner can

we hope to see definite constructive efforts made to eradicate this condition. Building more and more institutions for the feebleminded obviously is not the proper solution. Furthermore, so long as feeblemindedness is considered a condition that is diagnosable by means of a psychometric examination alone, so long shall we be hampered in solving this question. The problem is primarily a medical one, and the case just quoted shows what may be accomplished when the problem is attacked from this standpoint.

We have already made a small beginning along these lines in Cincinnati, where we have established, in addition to the Psychopathic Institute, an institution known as the Home School. Here we have placed a number of definitely feebleminded children who have been thoroughly studied at the Psychopathic Institute and who, as a result of that study, show that their feeblemindedness is associated with some organic condition that can be corrected by the exhibition of the proper therapeutic measures. These children will be kept at the Home School for a period of years, and will be given, in addition to the proper medical treatment, intensive social and vocational training in the hope that thereby their mental condition will be so improved that, instead of being committed for life to custodial institutions, they will be able to take their places in society as self-respecting and self-supporting individuals, in their proper spheres.

Up to the present, more than 150 cases have been studied at the Psychopathic Institute of the Jewish Hospital. The reason for admission has been either mental retardation or some form of antisocial behavior or conduct disorder, such as delinquency, incorrigibility or lack of social adjustment.

From the medical standpoint, these cases have been conveniently divided into two large groups, namely, functional and organic. Numerically, the cases are almost equally divided between these two groups.

In the functional group we have placed those children who present conduct disorders but who on examination are found to be normal physically. This group contains the neurotic children, the emotionally unstable, the hyperactive types and those suffering from pernicious environmental influences. This grouping permits of a further subdivision into (*a*) the environmental and (*b*) the individual.

In the first subdivision (the environmental) belong those problem cases in which the abnormal conduct reactions are due primarily to influences external to the child, while in the second subdivision (the individual) belong those cases in which the abnormal conduct reactions are due to functional disturbances within the child himself. It is in this group especially that the tactful psychiatric social worker is of the greatest help. Here also the quickest and most startling results may be expected.

In the second or organic group are placed those children who show some form of psychopathy as a result of a definite organic lesion.

As is to be expected, lesions of the central nervous system are the most numerous, and of these syphilis of the nervous system constitutes nearly 50 per cent. Next in frequency to involvement of the nervous system come disturbances of the incretory glands. A very large percentage of the organic cases have been improved through medical treatment. A critical analysis of these cases will appear in a later paper.

SUMMARY AND CONCLUSIONS

I wish to emphasize three very important facts:

1. The nature of a child's conduct reactions depends on two factors: (*a*) his innate physical and mental capacity for reacting and (*b*) the nature of his environment. Hence, when we are confronted with any form of psychopathy in childhood, both of these factors must be properly evaluated. In addition, the reactions of the child when placed in a normal environment must also be known. The data thus obtained, when correlated, permit the making of a correct diagnosis and the outlining of the proper treatment. At the Psychopathic Institute of the Jewish Hospital we have created an observation station where such a complete study is carried out scientifically.

2. Enough children have been reclaimed for society as a result of the intensive study carried out at the Psychopathic Institute to warrant the statement that it is unfair to commit any child who shows any form of antisocial behavior or conduct disorder to a corrective or custodial institution before he has been given the benefit of such a complete study.

3. Feeblemindedness should not be considered a clinical entity. Rather, it should be looked on as a symptom of some grave, underlying constitutional disturbance, the correction of which very often leads to a marked improvement, if not to an entire cure, of the retarded mental state. Such a thesis opens enormous possibilities for solving a problem that has been looked on by many physicians as hopeless. Furthermore, it permits the adoption of a constructive program in place of the merely palliative one of building more and more institutions for the feebleminded.

4 West Seventh Street.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. BRIDGMAN AND LURIE

DR. WILLIAM PALMER LUCAS, San Francisco: I want to emphasize the need for the general practitioner who has to deal with children, and for the pediatrician who is making a specialty of children, to take up the study of the normal mental and psychologic development of the child. Without such knowledge, he cannot understand even their physical defects. Information of this kind is very difficult to find in medical textbooks. We, as medical men, must see to it that it is put into the medical curriculum as part of the teaching in pediatrics. The question that Dr. Lurie raises as to special clinics and opportunities for diagnosis and the outline of the treatment of these cases brings forward a new field of development. We need other assistants. We must call in the psychologist to evaluate the mental processes of the child. That is just as much needed in diagnosis as is the physical examination. How much are these clinics going to do to keep children out of state institutions? This is a very important and difficult point. I am sure that the doctor did not mean to leave the impression that there are not certain hereditary defective cases, or that there is a cure for all defectives. That is not at all what Dr. Lurie meant; but a large percentage is not due to heredity, and, in these, treatment such as Dr. Lurie outlined would be of tremendous value. Such clinics are, I am sure, present in all large cities. We have them here. Patients with disorders of the endocrine glands have by their means undoubtedly been saved from institutions, and their problems solved in their own homes. This is the type of work that needs careful diagnosis and treatment, over long periods, and it can be carried out only under the observation of some one who understands what these various endocrine glands really mean in the development of physical and mental makeup. A few cases will respond as definitely as the ones Dr. Lurie cited. Unfortunately, at

present our knowledge is not sufficient to unravel the cases in which multiple gland defects are present, and those need the most careful study. Every institution for the care of defectives should be so equipped that a diagnosis of a case of internal gland derangement can be made in the institution itself. Too many state institutions think that custodial care is all that is needed. There are undoubtedly many cases in our institutions that could be salvaged if we could have the right type of intensive training and intensive study developed in the institutions. Many subjects could in this way be sent home cured.

DR. JOHN A. FOOTE, Washington, D. C.: For a long time the medical profession has neglected this particular branch of science, although, in our folk lore, we have all sorts of statements showing that people always knew something about child psychology. Proverbs, of course, are frequently not true, but many proverbs relating to the child are true. The pedagogic psychologist has been studying this question for a long time, and doubtless has had occasion to study school children that might have had early corrective treatment if physicians had known a little more about the thing that is being discussed today. Perhaps one reason why many physicians, even pediatricians, are not taking due interest in the normal and abnormal psychology of the child lies in the fact that we become confused when we try to read the textbooks dealing with this subject. That is not at all remarkable when we remember that this science in its present application is comparatively new. The physician who reads something about child psychology will probably find the behaviorists contradicting the pure psychologists, and that certain writers are 100 per cent. freudians and others one half of 1 per cent. freudians. That simply means that the science of child psychology is a growing science; that there is still a great deal of very valuable information to be gathered which will be available if we follow the underlying principles as they were outlined here today. One thing brought out here was well said at the St. Louis meeting of the American Child Health Association, when Mr. Herbert Hoover stated that "a great many of the parents still need bringing up." Mr. Hoover was speaking, not about child psychology particularly, but about the general treatment of the child. It is very true that our work in psychologic treatment will be largely concerned with the parents, at least quite as much concerned with the parents as with the child. If the physician will try to teach parents and guide them with such helpful suggestions as will enable them to retain self-control; if he will make them realize the imitativeness of the child, and the fact that, if the parent does not have self-control, the child will not have self-control—such teaching will help a great deal.

DR. RALPH H. KUHNS, San Francisco: A few years ago we took care of children when they had pneumonia, tonsillitis and typhoid fever, and paid little attention to the development of the normal child in the home. The most important idea now is that pediatricians are supposed to take care of the normal as well as of the abnormal child. It is not so much a question of the sick child today as it is the proper training and development of the child. We are getting back to preventive medicine and proper training along proper medical lines. Few people realize the importance of proper development. Physicians have always known what is normal and proper for children, but the laity has not been informed on these points. In the medical schools, more attention should be given to the training and development of normal children. At the University of California, we are working hand in hand with the Department of Psychology, and also with the social workers in the homes. Too little attention has been paid to the significance of the child in the home in regard to the social follow-up and the social progress.

DR. CLIFFORD D. SWEET, Oakland, Calif.: I should like to call attention to two points in regard to the management of children that are practical and that apply to every-day practice. The first is this: It is exceedingly important to use our best efforts to interest the father of the child in the child's problem. I find, many times, that the father actually knows very little about the child. He is a good father; he loves his children, but it has not occurred to him that the problem of training the child is at least equally his problem and concerns him in every way as much as it does the mother. With a little understanding and a little encouragement, he can be made to feel this and to apply his abilities to this problem. Hence we should become acquainted with the father as well as with the mother, and encourage the father to come to the office with the mother and the child, when we are going to talk over some particular problem, or sometimes make it our business to go to the home at an hour when we know the father will be there, in order to interest him. The other point is to encourage both father and mother to realize that they must be absolutely honest with the child. We must illustrate this by being honest and fair with the child. If we have to hurt him, we should explain to him why it is necessary to hurt him, and that we are doing it for his benefit. Sometimes it apparently does not do any good, but at many other times a child immediately becomes one's fast friend from that time on and trusts one under any circumstances.

DR. OLGA S. BRIDGMAN, San Francisco: The discussion has been very interesting. If I had to write another paper on the psychology of the normal child, I might write a more intelligent one. The whole subject of the psychology of the normal and of the abnormal child is the most interesting thing that any one could possibly be thinking of and working with, day after day. I hope that the good work will go along, until we have done more than just touch the subject, which is the situation now.

MASTOIDITIS WITHOUT APPARENT INVOLVEMENT OF THE MIDDLE EAR *

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Three cases of definite mastoiditis, in which there was no apparent involvement of the middle ear, have been observed in the Mayo Clinic. The incidence of this condition is low, when compared with the 500 cases in which there was involvement of the middle ear observed during the same period. The term primary mastoiditis, as it has been designated in the literature, is misleading in such cases since the infection must be primarily in the mastoid cells, and not secondary to an inflammation of the middle ear that has cleared up. It is possible to conceive of a blood-borne infection, after a severe local injury, as in osteomyelitis of other bones, although there is no more reason to expect such an infection in the mastoid than in other cavities, for example, the accessory sinuses.

In 1915, Dabney [1] reviewed the literature on this subject. He classified the condition as idiopathic mastoid abscess. He says:

> I wish the title to be understood as meaning an abscess in the mastoid process of the temporal bone without any immediately preceding or accompanying inflammatory involvement of the tympanum. It will be observed that the definition has been made particularly restrictive, in that it specifies merely inflammatory involvement, not abscess of the middle ear, as there are many cases in which it would be difficult to demonstrate an actual abscess and yet the mastoid disease would be plainly an extension of the tympanic inflammation.

Dabney reported twenty-four cases, to which he added two of his own. He argues that the infection may pass directly through the middle ear without instituting inflammation, and cites as an example tuberculous lymph glands in the neck, which had been infected

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* From the Section on Otolaryngology and Rhinology, Mayo Clinic.

* Read before the Section on Laryngology, Otology and Rhinology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

1. Dabney, Virginius: Idiopathic Mastoid Abscess, J. A. M. A. 65: 501-504 (Aug. 7) 1915.

from the tonsils, although no evidence of infection remained in these tissues.

It is generally agreed that the infection in mastoiditis comes from the nasopharynx by way of the eustachian tube. The involvement of the middle ear may be slight. Access to the mastoid cells is gained through the aditus ad antrum and, if this passage is small, it is soon sealed off, leaving no means of drainage for the infected cells, whereas, if the infection is in the middle ear there may be sufficient drainage through the eustachian tube. It is worthy of note that infection may exist in the middle ear without causing pain, discomfort, fulness, tinnitus or impaired hearing.

Mastoiditis, without apparent involvement of the middle ear, should not be confused with latent suppurative otitis media. In these cases there is deafness and sometimes pain, but no spontaneous discharge of pus. The tympanic membrane is without luster, full, and sometimes markedly bulging, and paracentesis is always followed by the discharge of pus. Mastoid involvement, and other complications, may or may not be present, whereas, in the cases of mastoiditis without apparent involvement of the middle ear, paracentesis is never followed by the discharge of pus.

A careful review of the literature has revealed twenty-six cases reported in English and American literature since Dabney's report in 1915. The descriptions of some of the cases are exceedingly meager. In many instances it is not stated whether or not paracentesis was performed, and no definite operative findings are given. It is quite probable that some of these cases are latent suppurative otitis media, and not mastoiditis without involvement of the middle ear.

Welton,[2] in 1915, reported a case in which there was considerable pain in the middle ear, but all landmarks were present. Broder,[3] in 1915, reported a case of an infant, aged 3 months, with a subperiosteal abscess. Paracentesis had been performed and no pus obtained. The child had sustained an injury to the mastoid bone one week previously. Broder believed the condition to be osteomyelitis following the injury. Broder reported another case of a boy, aged 7 years, with a subperiosteal abscess. The appearance of the drum was normal, but there was slight deafness. Operation revealed extensive necrosis. Bonner and Dutrow,[4] in 1915, reported one case in which there was definite involvement of the drum, which, I believe, excludes the case from being classified as mastoiditis without involvement of the middle ear.

Tomlin,[5] in 1916, reported a case in which the patient had been an invalid for ten years. Because of slight pain back of the ear, the mastoid was opened, and chronic suppurative granulomatous infiltration and inflammation, with thin, dark, straw colored fluid were found. The patient recovered, and gained 20 pounds (9 kg.) in a short time.

Sonnenschein,[6] in 1917, reported a case of a man, aged 34, who had complained of a cold in the head with pain around and back of his ear. There was no deafness and no change in landmarks. Two paracenteses were negative. The patient had had a rise in temperature and leukocytosis. One month after the first examination, swelling appeared over the mastoid. Operation revealed extensive destruction of cells. Long,[7] in 1917, reported a case of a girl, aged 12 years, suffering from severe chills, fever, prostration, and pain in the left ear. Two weeks previously she had had a severe cold in the head; the membrane was red and injected; incision did not disclose pus. At operation, a badly necrosed mastoid with sinus phlebitis was found.

Dulaney,[8] in 1918, reported three cases, only one of which could be classified as mastoiditis without involvement of the middle ear.

Knight,[9] in 1919, reported a case of a young girl who had been sick in bed for two weeks with influenza. Three months later, swelling appeared over the mastoid. Operation revealed marked destruction of the cells. Miller,[10] in 1919, reported two cases: one following an attack of measles, during which the child complained of a mild earache, and one following rhinitis. Probably neither of these cases is idiopathic. West,[11] in 1919, reported a case of subperiosteal abscess without involvement of the middle ear. He did not give the findings relative to the middle ear. There had been a daily chill and rise of temperature. The sinus and dura had been exposed during the operation. The case, however, proved to be one of malaria and not sinus thrombosis. Kerrison,[12] in 1919, reported a case of a boy, aged 4 months, without involvement of the middle ear. The child had been fretful previous to the appearance of the subperiosteal abscess. Friesner,[13] in 1919, reported seven cases of mastoiditis with perisinuous abscess in which the middle ear had not discharged. These cases were all observed during the months of January and February. The appearance of the membrane, and whether or not a paracentesis had been performed, were not recorded.

Glogau,[14] in 1921, reported a case with perisinuous and extradural abscess, with operation and recovery. He believes that primary mastoiditis is a distinct clinical entity, and that the infectious material passes through the middle ear without finding favorable conditions for growth. The aditus, being poorly supplied with blood vessels, allows the infection to reach the antrum, and swelling closes off the opening from the middle ear. It is hardly possible, however, that the infection would cause so much reaction in the aditus ad antrum and not cause reaction in the middle ear. Zamora,[15] in 1921, reported three cases, in one of which there had been severe earache six months previously, and catheterization gave the impression of fluid in the middle ear. The condition of the drum, and whether or not paracentesis had been done, were not mentioned. Mollison,[16] in 1921, reported two cases. One followed an attack of influenza. No information was given with regard to the appearance of the drum, or of a paracen-

2. Welton, C. B.: Mastoiditis and Mastoid Abscess Without Suppuration from the Middle Ear and Without Any Apparent Middle Ear Inflammation, J. Ophth. & Oto-Laryngol. **9**: 86-91, 1915.
3. Broder, C. B.: Primary Mastoiditis: Report of Two Cases. M. Rec. **88**: 482-483, 1915.
4. Bonner, H., and Dutrow, H. V.: Report of a Case of Primary Mastoiditis, Laryngoscope **25**: 244-245, 1915.
5. Tomlin, W. S.: Report of a Case of Suppurative Mastoiditis Without Tympanitis, Indianapolis M. J. **30**: 95-97, 1916.
6. Sonnenschein, Robert: Primary Mastoiditis, with Report of a Case, Illinois M. J. **32**: 167-169 (Sept.) 1917.
7. Long, C. H.: Acute Suppurating Mastoiditis Without Tympanitis; Perisinus Abscess, Phlebitis, Streptococcemia, Operation, Recovery, Ann. Otol., Rhinol. & Laryngol. **26**: 432-435 (June) 1917.
8. Dulaney, O.: Some Clinical Observations on Primary Infection of the Mastoid, with Report of Cases, J. Tennessee State M. A. **11**: 264-269, 1918-1919.
9. Knight, F. H.: Case of Perisinus Abscess Without Involvement of the Middle Ear, Laryngoscope **29**: 433-438, 1919.
10. Miller, C. M.: Mastoid Abscess Without Suppuration in Tympanic Cavity: Report of Two Cases, South. M. J. **12**: 105-106 (Feb.) 1919.
11. West, L. N.: Mastoiditis Without Involvement of Middle Ear: Complicated by Malaria, South. M. J. **12**: 339 (June) 1919.
12. Kerrison, P. D.: Mastoiditis Abscess Without Aural Discharge, Ann. Otol., Rhinol. & Laryngol. **28**: 949-951, 1919.
13. Friesner, I., quoted by Knight (Footnote 9).
14. Glogau, O.: Primary Mastoiditis with Perisinus and Extradural Abscess; Operation; Recovery, Laryngoscope **31**: 318-320 (May) 1921.
15. Zamora, A. M.: Mastoiditis and Complications Without Otorrhoea, and Some Observations upon the Resolution of Mastoid Infections, Guy's Hosp. Rep. **71**: 216-221 (April) 1921.
16. Mollison, W. M.: Two Cases of Lateral Sinus Thrombosis Without Otorrhoea, Proc. Roy. Soc. Med., Sect. Otol. **14**: 42-44, 1921.

tesis. This case may have been latent otitis media. In the second case the patient had had earache ten days previously. Likewise, nothing was said of the appearance of the drum. Both of these patients later had sinus thrombosis, and both recovered. Dawson,[17] in discussing this paper, said that he had had cases in which the middle ear cleared up absolutely, probably as a result of the drainage through the eustachian tube; the mastoid condition, however, went on to abscess. Scott[17] said that he had reported two cases of extradural abscess eleven years previously, in which the hearing was perfect and the membrana tympani normal. Taylor,[18] in 1921, reviewed a case of atypical mastoiditis following a staphylococcemia. This was clearly a mastoiditis of blood-borne infection. This, we must admit, is a rare condition. Ballance,[17] in May, 1921, reported a case of acute osteomyelitis of the mastoid which had nothing to do with the primary disease. He could see no reason why osteomyelitis should not take place in the temporal bone as well as in the other bones of the body. He reported a very interesting case. A boy had died of septicemia three weeks after an operation for harelip. The wound, which had already healed perfectly, began to break down. There was no rise in temperature, and there were many petechial spots over the body. Necropsy revealed extensive destruction of the petrous bone and mastoid cells, with suppuration in the sinuses. The ears had been examined repeatedly.

REPORT OF CASES OBSERVED IN THE MAYO CLINIC

Case 1.—*History.*—R. S., a man, aged 20, came to the clinic, Sept. 20, 1922, because of painful swelling of the right mastoid and upper cervical region. For seven years the patient had had recurring attacks of furunculosis in both external canals, worse in the right. The furuncles ruptured spontaneously, the discharge lasting from two to seven days. The last attack had occurred five weeks before, with spontaneous rupture in eight days. Swelling over the mastoid had been present for six days. The patient had had night sweats for five weeks.

Examination.—The hearing was normal. Findings in the nose, nasopharynx, throat, larynx and both tympanic membranes were negative. There was slight swelling and tenderness in the region of the isthmus and right external canal, and a large tender swelling below the tip of the right mastoid and extending down the sternocleidomastoid muscle. Roentgenograms revealed destruction of cells. The leukocytes numbered 14,600. A tentative diagnosis was made of mastoiditis with Bezold abscess.

Operation.—The usual mastoid incision was made. Bleeding of the cortex and perforation in the posterior tip were found. All cells were removed. The aditus ad antrum was very small. The abscess cavity was drained. Bacteriologic examination revealed staphylococcus. The tympanic membrane was incised, but pus was not obtained. The patient was dismissed two weeks after the operation, with the wound healed.

Comment.—It is likely that the last attack was otitis media and not furunculosis, and it is barely possible that the mastoiditis was primary, the furunculosis having been the source of infection.

Case 2.—*History.*—F. M., a boy, aged 14 years, was brought to the clinic, Jan. 31, 1919, because of swelling behind the right ear of three days' duration. He had had chorea until the age of 12, and had never been well. He had had influenza two months before, was in bed two weeks, and was confined to the house four weeks. Early in the attack there had been slight pain in the right ear for one hour.

Examination.—The hearing was normal. There was slight redness and swelling of the external canal and the tip of the mastoid, with tenderness on pressure. The tympanic membrane was not seen. By catheterization of the eustachian tube, the middle ear was shown to be clear. The roentgen ray revealed extensive destruction of the mastoid cells.

Operation.—Marked edema of the subcutaneous tissue, and perforation of the cortex of the mastoid over the antrum, were found. There was marked destruction of cells, and a perisinuous abscess. The antrum was small and located with difficulty. The tympanic membrane was incised, but pus was not obtained.

Comment.—This patient, no doubt, had had otitis media during the attack of influenza; the infection spread to the mastoid, and the inflammation, coincident with the infection, sealed off the aditus ad antrum. Streptococcus was revealed on culture. The mastoid cavity was dry, and the wound healed in ten days. At no time was there discharge from the middle ear.

Case 3.—*History.*—A. T., a man, aged 41, came to the clinic, Aug. 5, 1922, with pain, redness and swelling over the left mastoid. About four months before he had had influenza, and was in bed for three weeks. He had had severe pain in the left ear, followed by a bloody discharge mixed with cerumen. (From the patient's description, the condition may have been myringitis bullosa.) At the end of two weeks there was slight tenderness over the mastoid, but this disappeared in a few days. The patient had remained well until two weeks before, when he developed an acute cold. One week later the tissue over the left mastoid became painful and swollen.

Examination.—The hearing was normal. Aside from septic tonsils, no abnormality was noted in the nose, throat, nasopharynx, larynx and tympanic membranes. The posterior superior canal wall drooped slightly. A large fluctuating mass was present over the left mastoid region. Roentgenograms revealed destruction of the mastoid cells.

Operation.—A large subperiosteal abscess, and perforation of the cortex on the posterior aspect of the tip were found. All cells were broken down and filled with pus and granulation tissue. An effort was made to clear these out. Paracentesis was performed without finding pus. The wound healed and the patient was dismissed in fifteen days.

Comment.—From the operative findings it would appear that the mastoid infection, which was of low virulence, and aggravated by the severe cold, was simultaneous with the pain in the middle ear.

SUMMARY

It will be recalled that in the second and third cases there was a history of an antecedent pain in the ear which disappeared without treatment in a very short time; in fact, in Case 2, it was said to have been an hour. The symptom which called attention to the mastoid was the swelling over the mastoid process. The indolent type of infection, and the slow breaking down of the septums of the cells into a large cavity, followed by the formation of the subperiosteal abscess, could explain the absence of pain as a prominent symptom. The anatomic conformation of the mastoid process may have been a factor, because the antrum and aditus were found to be very small. It seems evident that these cases could not be grouped in those of blood-borne infection.

In all cases the middle ear structures and the tympanic membrane were negative to physical examination. In the second case there was noticed a marked fulness of the superior canal wall externally to the isthmus. One usually expects to encounter drooping beyond the isthmus.

While the study of these three cases of mastoiditis without involvement of the middle ear does not permit definite conclusions, it indicates the existence of an antecedent otitis media without symptoms.

17. Quoted by Mollison (Footnote 16).
18. Taylor, H. M.: An Atypical Mastoiditis Following a Staphylococcemia, South. M. J. 14: 167-170 (Feb.) 1921.

ABSTRACT OF DISCUSSION

DR. WILLIAM ELLERY BRIGGS, Sacramento: In 1897 I reported a case (*Occidental Medical Times* **11**:184, 1897) very similar to some of the cases that Dr. Hempstead has reported. At that time I had not studied the literature on the subject, and I did not know whether or not other similar cases had been reported. It seemed to me then that mastoid infection was always subsequent to middle ear suppuration. But this patient had no middle ear suppuration and very little evidence of trouble in the middle ear. There was some difficulty in hearing, a little fulness of the ears, which was treated by local methods. The patient was sent home, several hundred miles away, apparently nearly well. Later, he returned with severe pain in the mastoid region. Ice compresses were applied, but the pain continued. Definite swelling of the posterior wall of the meatus was found, and a mastoid operation was done. Considerable pus was found in the deep cells of the apex, but at no time was there any evidence of purulent infection in the middle ear. I believed at that time that the infection had entered the cells through the middle ear, and I believe that most of these infections enter the same way, notwithstanding the fact that we have very little evidence of infection in the middle ear. I think that infection can be conveyed through the middle ear without causing very marked symptoms. I am convinced that nearly all mastoid suppurations enter the cells through the middle ear. I am also quite certain that such infection can, and undoubtedly does on rare occasions, enter the cells through the blood. The instances of such source of infection are more difficult to trace and less certain as to origin.

DR. FRANCIS I. ROGERS, Long Beach, Calif.: I was not aware that mastoid inflammation without a preceding well defined middle ear abscess so rarely occurs as Dr. Hempstead has indicated. I saw a woman, aged 40, mother of seven children, who two months previously had had influenza. She was not then under my care, but both the patient and her physician reported an uneventful recovery in the usual period of three or four weeks, without appearance of complications. About ten days later, a swelling appeared over one mastoid. Preceding this there had been for a week occasional pain in the mastoid region, but no earache. There had been no fulness in the ear. When I saw her there was no discharge, and she said that there had been none, and there was no redness or swelling of the tympanum, and the tympanum was not open. She came to operation for simple mastoid within two days after I first saw her, and a typical broken down mastoid was present. Her recovery was uneventful following the operation. At no time was her eustachian tube obstructed, nor was the middle ear more than moderately congested. My theory was and is that such infections come directly from the nose through the eustachian tube and middle ear, becoming implanted in the mastoid cells primarily.

DR. THOMAS E. CARMODY, Denver: I have seen three cases in the last year and a half that resemble Dr. Hempstead's case. I question whether any of these cases are primary mastoiditis. Two of my cases I was certain were not. The first case was in a man, aged about 40, who had a simple swelling of the canal. The membrane was normal, and the first intimation we had that there was anything wrong was the swelling over the mastoid. I felt that I had overlooked something. The roentgenogram showed that the mastoid had broken down, and on opening it I found the sinus exposed, but nothing further. There was nothing in the middle ear, but I believe there was something in the middle ear below. The other case occurred in a child, aged 3½ years, that had influenza and a discharging ear six weeks before. The history was that swelling had begun two hours before I was called. The mastoid was very much broken down and the membranes in the posterior fossa exposed; the sinus was also exposed. The third case was in a child, aged 8, that had had a mastoid operation performed a year before on the opposite side. He was brought in with a swelling over the mastoid. There was congestion of the membrane, but no pus was found These cases possibly were due to a hematogenous infection. In the last two cases there was no question as to infection in the middle ear.

DR. LEE COHEN, Baltimore: Last May I operated on a man, aged 51, who had had his initial earache six months before. That earache lasted only about three quarters of an hour. His family physician gave him a mild anodyne, and from that time on he had no further symptoms, except a feeling of fulness at times. His hearing was very slightly impaired and he was able to look after his work until he came to me. At that time he had been feeling bad for a week or two; he had more or less malaise, and did not feel like working. A thorough examination of the ear was made. The functional tests were normal. The drum appeared to be normal, but there was very slight tenderness over the mastoid. Roentgen-ray examination showed a complete disintegration of all the mastoid cells. A paracentesis was immediately made, but no pus or other secretion was discernible. The following day a mastoid operation was performed and a pus-filled mastoid with all cells completely disintegrated, was found. The antrum was easily found, showing that the process had been going on for a long time. *Streptococcus hemolyticus* was found. This condition certainly originated when he had the earache six months before, and I do not believe we have any mastoid infection that does not originate from the middle ear infection primarily.

DR. H. M. TAYLOR, Jacksonville, Fla.: The literature on primary mastoiditis shows that very little attention has been given to the bacteriology of the blood. Recently, I reviewed the literature of forty cases of primary mastoiditis. Seven of these were reported to have been hematogenous in origin, and yet in not one of these seven cases was a report made as to the bacteriology of the blood stream. Three years ago I reported a case of primary mastoiditis following a staphylococcemia. A woman consulted me on account of a furuncle over the left eyebrow which showed a staphylococcus infection. A week later she came in complaining of a deep-seated pain over the right mastoid. The fundus presented a normal drum membrane and no scar of a previous perforation. Hearing was not impaired. The eustachian tube was catheterized, and no fluid could be detected in the middle ear or in the eustachian tube. This pain persisted for eight days. A roentgenologic study was made and a cloudy mastoid was reported. A blood culture showed a staphylococcemia. The mastoid was opened, and an abscess was found in the tip cells which showed a staphylococcus infection. In this case we found the primary infection, and the same organism in the blood stream and in the mastoid abscess. Until we have studied the bacteriology of the blood stream in these cases, the diagnosis of primary mastoiditis does not rest on a sound basis.

DR. HAROLD M. HAYS, New York: In all of these case reports there was evidence of some mastoid involvement. But what about the case in which there are not mastoid symptoms at all? In three years I have had three such cases, one of which was interesting. A man had had a mild earache for four weeks. Then it cleared up, with a narrowing of the canal. After examining him a number of times and watching him for three or four weeks, during which time the middle ear appeared to be normal, I told him to have a roentgenogram made. It showed complete destruction of the mastoid. Operation was performed and an abscess found. Since that time I have had two other cases presenting no symptoms of mastoiditis whatever. The only indication that there might have been mastoid involvement was the narrowing of the ear canal. This point should be taken into consideration, and when there is a narrowing of the ear canal not sensitive to pressure, a roentgenogram should be made.

DR. CULLEN F. WELTY, San Francisco: I have had several cases in which the only diagnostic symptom was narrowing of the posterior wall. I believe that this particular symptom is more reliable than any other symptom. The last case was interesting because of the unusual course pursued. Ten weeks ago this patient, on blowing his nose, suffered intense pain in his ear, which subsided gradually after three weeks. He had no pain in the mastoid. There was no discharge from the ear. At intervals of several days, he had pain in the temporal region that compelled him to take morphin. He complained of some pain under the tip of the mastoid, but not enough to speak of. This fact was elicited on close questioning. He never had a discharge from the ear. This continued

for ten weeks, when I first saw him. There was then bulging of the posterior, inferior wall of the canal of the ear; a suggestion of redness of the membrane; no temperature elevation; no leukocytosis; some slight tenderness on rather firm pressure or percussion over the whole side of the head and under the tip of the mastoid more so than over the mastoid. The roentgenogram showed that the mastoid had been infected. The outlines of the individual cells were clearly marked. It was my notion that there was a large, confined abscess; in fact, one could think of nothing else from the symptoms. The patient was operated on, and I found a rather small, pnenumatic mastoid. The individual cells of the mastoid were intact; the mucous membrane of each cell was so swollen that it filled the cell. I finally reached hard bone everywhere, with the exception of deep below the sinus. On removing that last bit of cancellous bone, I encountered the abscess, which was large and extended deep toward the jugular bulb. The sinus wall was covered with necrotic granulations. The sinus was uncovered until it was healthy. The man made a quick recovery.

Dr. Harold Bailey, Springfield, Mo.: Until recently I felt somewhat skeptical as to the possibility of a mastoid suppuration without visible change in the drum head. We now know that this does occur, though rarely. I have seen two cases within the last three years, one in a man, aged 60, and the other in a child, aged 2 years. The second case was most striking. The child was brought in with a history of pain, swelling and tenderness over the left mastoid, and a temperature of 102 F. The ear drum showed nothing abnormal. There was no apparent thickening, no bulging, no redness or congestion of any kind, and the light reflex appeared to be unchanged. I made a diagnosis of subperiosteal abscess and advised an operation, which was declined. I saw this baby every day for a week, and examined the drum each time without detecting any change. I again urged an operation, which was done that morning, revealing a collection of pus beneath the periosteum, a small opening through the cortex, and the mastoid cells filled with pus. To me this case was unique in that a middle ear infection in a baby, aged 2 years, could go on to mastoid suppuration and cortex perforation without any change whatever apparent in the drum.

Dr. Charles W. Richardson, Washington, D. C.: Primarily, I do not believe there is such a thing as an infection of any organ or tissue without some means of invasion of bacteria. I do not believe that any of these cases reported are primary infections of the mastoid without involvement of the middle ear. Certainly, two cases are not. I believe that all these cases could be designated as late development of mastoiditis without visible infection of the middle ear.

Dr. Anna M. Flynn, San Francisco: In San Francisco, we have had a number of such cases among Chinese due to the parents or barbers infecting their ears.

Dr. George F. Keiper, Lafayette, Ind.: I wish to call attention to a condition in which the aditus ad antrum is sealed off by the infection in the middle ear before the mastoid itself can be infected. I have seen three such cases. Each patient suffered tortures. The mastoid in each case was exquisitely tender to touch and pressure, with all the usual middle ear disturbances. What happens is this: The air in the cells thus sealed off from the middle ear is robbed of its oxygen by the circulating blood therein. A partial vacuum is thus produced. The outside air presses on the mastoid, 15 pounds to the square inch. The pressure of the air on the inside may be only half that, destroying the balance formerly existing. I shall never forget my first case. We had not arrived at the days of roentgen-ray diagnosis. I opened the mastoid; very much to my chagrin, no pus was found. I thought that I had made a mistake in diagnosis. The family physician thought so too. But later on Sluder taught us that there was such an affection as vacuum headache, caused by occlusion of the frontal nasal duct through adhesive inflammation, to be relieved only by forcible opening of that duct. Then it dawned on me that we had had a similar process which sealed off the aditus ad antrum. Since then I have seen two other cases. The roentgenograms showed doubtful cloudiness. I explained to each that no pus would be found but that the whole trouble was due in each instance to absorption of some of the air contained in the mastoid cells. No relief was to be expected unless air was let into the cells by a mastoid operation. All the patients recovered promptly and with no return of trouble because the wound was immediately sewed up tight with a blood clot therein. I suggest a new name for the condition—"vacuum mastoiditis."

Dr. Frank E. Detting, Los Angeles: A case that came under my observation was at first entered as a mental case, with speech disturbance as the chief symptom. The aphasic symptom gradually progressed, with no definite etiologic factor. The history from the family was negative as to ear trouble, and inspection of the ear showed a normal tympanic membrane, no sagging of the posterior canal wall, and no external mastoid symptoms. The roentgen-ray examination in this case was unusually valuable, showing a very definite blurring of all cells. With the roentgenogram as our only definite indication for operation, the mastoid process was opened, and we found pus and much necrosis of the parts. The dura of the middle fossa was covered with thick granulation tissue, and one small area of dura looked suspicious of sloughing. With that local condition, the history of aphasia and the encouragement of a neurologist, we explored the temporosphenoidal area of the brain and discovered a large abscess.

Dr. Bert E. Hempstead, Rochester, Minn.: I should like to make the point that in all our cases at some time there had been middle ear involvement. In the paper I say "without apparent involvement." Aside from those cases that had external manifestations, the roentgen ray is about the only aid we have. We must also consider that, with pain over the mastoid, the findings of the Sluder syndrome must be ruled out.

HYPODERMIC GENERAL ANESTHESIA*

EUGENE R. LEWIS, M.D.
LOS ANGELES

This constitutes a report of my individual experience covering more than fifteen years' use of scopolamin and morphin in conjunction with local anesthetics in nose, throat and ear surgery. After a summer semester spent at the University of Freiburg in 1905, during which my attention had been attracted by the "twilight sleep" in vogue in the obstetric pavilion, I conceived the idea that a modification of this hypodermic narcosis might be advantageous to ear, nose and throat surgery. Many years later I learned that the same idea had occurred to Dr. Myron Metzenbaum, and that in 1900 he had begun the application of this to surgery in this field. To Dr. Metzenbaum belongs the credit of introducing the use of this anesthesia, at least to laryngologic surgery, and as far as I know, his work may antedate that of the obstetricians. I have been unable to find the exact date of the beginning of "twilight sleep."[1] Dr. L. M. Hurd of New York also used scopolamin and morphin very early, his development of this as an adjunct to ear, nose and throat surgery dating from 1912.

My own experience with the use of scopolamin and morphin led me through a short period of tentative, I might say almost apprehensive, trial in selected cases in which general anesthesia was definitely contraindicated. The first use I made of it was in a woman, aged 22, suffering from active pulmonary tuberculosis, a double mitral lesion, and acute general arthritis. Her physician desired the removal of frankly pathologic tonsils, acute inflammation of which had preceded the outbreak of the

* Read before the Section on Laryngology, Otology and Rhinology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

1. Schneiderlin, in 1900, first reported the use of scopolamin and morphin to induce surgical anesthesia. Steinbuchel applied this to obstetrics in 1903. Gauss of Krönig clinic at Freiburg reported 1,000 cases in 1907.

totally incapacitating arthritis. I used 1/100 grain (0.00065 gm.) of scopolamin and 1/4 grain (0.0162 gm.) of morphin at one injection, followed in thirty minutes by peritonsillar injections of 0.1 per cent. cocain in epinephrin, 1:15,000. The complete success of this attempt led me to use the same procedure in operating on a chronic mastoiditis in a woman, aged 35, who had active pulmonary tuberculosis and an old pyelonephritis. These two cases, in very bad surgical risks, were complete successes in every way, and encouraged me to extend the use of these new found friendly drugs to many other bad risk cases, including several chronic suppurative spheno-ethmoid cases of asthma of long standing, suppurative antral and frontal cases, and modified radical mastoid cases.

During the last fifteen years, I have used scopolamin and morphin anesthesia in operating on patients suffering from active pulmonary tuberculosis, renal tuberculosis, lymphatic tuberculosis, bone tuberculosis, pyelonephritis, nephritis, diabetes, anaphylactic asthma, toxicosis, hyperthyroidism, hypertension, hypothyroidism, carcinoma, endocarditis and myocarditis. I have never had a death following its use, nor have I had occasion for anxiety in connection with its use. For fear of misunderstanding I will state specifically that it is my universal practice to subject every patient to a thorough preoperative general physical examination, the results of which determine my decision for or against operation. I have proceeded to operate in many poor surgical risk cases under this narcosis in which I would have hesitated to operate under general inhalation anesthesia.

My unbroken series of successes in "bad risk" cases led me to apply this hypodermic anesthesia to "good risk" patients. For the last fourteen years I have used scopolamin and morphin injection as the anesthetic method of choice in ear, nose and throat surgery, except in patients below the age of 12 years. In certain cases I have used it below this age limit; the youngest patient was a boy, aged 7 years, on whom I performed a tonsil-adenoid operation with completely satisfactory anesthesia. I have used this injection on many persons over the age of 70, and on eleven over the age of 80, my oldest being a woman of 86, weighing 120 pounds (54 kg.) on whom I performed tonsillectomy.

Before proceeding further, I believe it essential to mention certain items which require specific attention and successful handling in order that the outcome of any anesthetic procedure may be all that might be desired by operator and patient. The first item in every case is a mental condition of apprehension. This brings about a successively increased nervous tension which lowers the threshold of all sensitivities and creates a state of general hyperesthesia. This constitutes a most unwelcome beginning, a state tending to tremor, sweat, pallor, palpitation, increased reflexes and faintness. These are, of course, psychogenic, but the untoward effects of this condition are not mitigated by realizing that it is only "fear reaction." Furthermore, it includes certain symptoms which may well be looked on by the operator with alarm during the later stages of the procedure. Pallor, tachycardia and faintness may be due to acute drug intoxication of dangerous degree, indistinguishable from the same symptoms of psychogenic rather than toxic origin.

The next item is the state of the reflexes, which are greatly increased. This condition of increase constitutes a far greater obstacle to the facile performance of operative procedure in the nose and throat than in the ear-mastoid regions. These reflexes are, of course, initiated in the operative area; their exaggeration depends on the psychic condition of apprehension already mentioned; their motor expressions include not only coughing, gagging, sneezing and other similar involuntary acts, but also excessive flow of saliva and mucus incidental to the manipulation of the throat and nose. This outflow of excessive secretion has a two-fold undesirable result: first, it washes away any local anesthetic from its site of topical application; second, it necessitates acts of disposal—either ejection or swallowing—of the excessive quantity of fluid secretion. Thus the reflexes are responsible for a series of interruptions in the production of local anesthesia.

The third item that requires special attention in producing satisfactory anesthesia is the production of complete local anesthesia in the actual operative field. It matters not whether by nerve blocking or by completely desensitizing the operative field and neighborhood, it is desirable to check the emission of sensory impulses for at least two reasons: first, because they constitute the first leg of a reflex through a lower circuit; second, because their arrival in the higher centers results in a certain degree of shock and neuropsychic trauma, despite obtunded consciousness.

The acute apprehension and its collateral effects may be handled satisfactorily by a certain dose of morphin and scopolamin. In certain operative procedures on the upper respiratory tract there is a definite advantage to the operator without counterbalancing disadvantage to the patient in retaining a certain awareness and cooperability on the part of the patient. This is particularly true of laryngeal and tracheal procedures and of certain intranasal procedures, notably submucous resections, of either the septal or lateral wall. For such cases I use hypodermic injections of 1/8 to 1/6 grain (0.0081 to 0.0108 gm.) of morphin, with 1/100 grain (0.00065 gm.) of scopolamin, which usually proves very satisfactory. There is another class of operative procedures which offers no advantage to the operator or the patient in retaining this cooperative state of the patient; in such cases I have used as a routine from 1/4 to 1/3 grain (0.0162 to 0.0216 gm.) of morphin with 1/150 grain (0.0013 gm.) of scopolamin at one injection with the intention of producing an adequate degree of general narcosis. This class of cases includes such procedures as tonsillectomy, opening peritonsillar abscesses, tympanomastoid operations, radical mastoidectomy, simple opening of the mastoid, and certain extensive operations on nasal sinuses. Since 1912, I have used 1/4 grain (0.0162 gm.) of morphin with 1/150 grain (0.0013 gm.) of scopolamin at one dose hypodermically in average run patients between the ages of 14 and 60 years. My experience has taught me that young children require morphin in relatively larger doses than adults, and that older adults (over 55 to 60 years) require relatively less morphin than those between the ages of 20 and 60, contrary to textbook teachings.

I aim to use sufficient scopolamin and morphin at one injection to produce not only complete absence of apprehension but also dryness of the mucous membranes, complete general relaxation, sleep, and profound obtunding of the sensorium. This condition supervenes usually from forty to sixty minutes after the injection, but occasionally as much as ninety minutes may elapse before the required stage is reached. There is no necessity for speed, as the narcosis may be counted on to endure for two or three hours. The synergistic actions of morphin and scopolamin are too well known to war-

rant specific mention. Suffice it to say that, in adequate dosage, the sensorium is profoundly obtunded, and particularly is the memory closed to the reception of registrations; the latter is strikingly apparent in the large number of patients who ask, hours after the completion of an operation, "How soon am I to be operated on?"

From forty to sixty minutes after the hypodermic injection of morphin and scopolamin, the patient's condition is suitable for the second preoperative step. Sleepiness has supervened; the mucous membranes are dry; apprehension has disappeared. There is no difficulty in proceeding with necessary local anesthesia, which is produced with a minimum of topical applications and local injections. The operative work itself may be done with the patient in the sitting position, semirecumbent or recumbent; I have not encountered any evidence contraindicating the use of the position of choice. The narcosis endures from two to three hours, varying with the dosage and the individual patient.

I have encountered certain disquieting symptoms in relatively rare instances, tremor, tachycardia and palpitation. I have never seen a case exhibiting these symptoms to a degree which interrupted the prosecution of operative work. I have never seen these symptoms last longer than a few minutes, or be of sufficient degree to cause me to be apprehensive. In very rare instances, excitement and delirium of mild degree are encountered. My nurses have volunteered the information that they have observed delirious effects more frequently in patients receiving repeated fractional doses, and that is my own impression. In addition to occasional delirium, the nurses have remarked the following untoward symptoms in rare instances: 1. Trembling—usually limited to a short period before the narcosis. 2. Rapid pulse, as high as from 120 to 130, limited to the early stage of narcosis, except in certain cases in which narcosis was less than desired. Rapid pulse has not been observed postoperatively. 3. Occasional cyanosis, of such mild degree as to be questionable. This condition I have not observed. A few people experience nausea after opium or its alkaloids. While I have witnessed in very rare instances a late postoperative nausea following the use of scopolamin and morphin injections, I have seen it so rarely that it is justifiable to state that one encounters practically no unpleasant after-effects.

I value this method of anesthesia because of its safety, its ease of administration, its applicability to cases in which contraindications exist as to the use of ether, chloroform or nitrous oxid, its drying effects on mucous membranes, its adequacy for any operative procedure, and its freedom from unpleasant after-effects.

I desire to state very specifically that, while I regard this form of narcosis as safe in experienced hands, I advise against its indiscriminate use and urge the selection of small doses by the beginner until he has acquired thorough familiarity with the effects of these drugs.

1920 Orange Street.

ABSTRACT OF DISCUSSION

Dr. Neil C. Trew, Los Angeles: The report of any series of cases in which an unusual method has been employed is always of great interest. We are all apt to follow generally accepted methods, even when other methods have been proved to be better and safer. Does hypodermic general anesthesia constitute a safer and better method than ether vapor? We may consider an anesthetic under three heads: the convenience of the surgeon; the comfort and the safety of the patient. As to the convenience of the surgeon, there can be little argument. The time necessary to produce satisfactory anesthesia varies so much—from half an hour to three hours—that it constitutes a decided inconvenience, and of itself is enough to rule out the method for most busy operators. As to the comfort of the patient: This method is entirely satisfactory in the vast majority of cases. The patient does not dread the operation. He suffers no pain during the operation, and remains in comfortable oblivion for a number of hours afterward. He is free from postoperative vomiting. Coming now to the most important consideration of all, the safety of the patient, I have been unable to find a single record of death attributed to scopolamin and morphin. It has been used extensively as a premedicant before general anesthesia, and also in the so-called twilight sleep, but no death is recorded to its discredit. The infant mortality is raised in confinement work, but no deaths of the mother are recorded. Occasionally delirium has developed, but has always been recovered from sooner or later. Any danger, then, comes from the local anesthetic, which, we all know, is not without danger. A commission was appointed last year to investigate deaths from this cause, but its findings are not yet available. Last year forty-seven deaths were reported by a committee investigating them. Unfortunately, Dr. Lewis does not mention the number of cases in which he has used this method, and before any final decision we must have a large series of cases to consider; but at present it would seem that we have in the method an anesthetic as safe for the patient as local anesthesia, satisfactory as to the comfort of the patient, but inconvenient for the surgeon on account of the uncertain time element.

Dr. I. D. Kelley, Jr., St. Louis: I wish to corroborate the statements made by Dr. Lewis. In our service at the Washington University Dispensary and the Barnes Hospital for the last few years we have been using scopolamin and morphin anesthesia in selected cases. We use it in the form of twilight sleep. Dr. Schwartz, chief of the obstetric department, uses twilight sleep as a routine and with such satisfactory results that we began using it in our nose and throat operations in selected cases. We have found it a most satisfactory anesthetic in sphenoidal work. When we induce twilight sleep, very little nerve blocking is necessary, and we get complete and satisfactory anesthesia. Its popularity as an anesthetic has grown year by year. We have found no complications in its use, and use it frequently in mastoid work when there is contraindication to general anesthesia. In bad nephritic and heart cases, if we induce twilight sleep, starting the patient with a very little gas anesthetic, we are able to complete the operation in a most satisfactory manner. I have had experience with this type of anesthesia in cases of acute psychosis when it was necessary to remove infected tonsils or pus foci about the nose and throat, and found it decidedly satisfactory. We feel that those who adopt this method will use it more frequently until, as Dr. Lewis says, it will supplant many other types of anesthesia. I believe that, to get proper operative results, we must have proper relaxation and proper anesthesia. In one or two cases I recall some difficulty. In one case the patient, instead of developing twilight sleep, developed symptoms of acute mania; but that is quite the exception. In all cases in which the patient is at all afraid of the operation, in which there is a nervous or mental reaction, twilight sleep is the ideal anesthesia. I have not employed this method in children, because I have always felt—probably as the result of an untoward result a few years ago—that a narcotic is undesirable in such cases and have feared to risk it. But in young adults and in older persons it is eminently satisfactory.

Dr. H. R. Lucas, Portland, Ore.: The time element is important, in doing, for instance, a mastoid on a patient with diabetes. If we are doing a series of tonsillectomies, after twenty or twenty-five minutes the patient becomes too much relaxed and is hard to manage in the sitting position. This is my particular point. If the injection is given more than forty minutes before tonsillectomy, one may suffer nausea.

DR. C. A. BROADDUS, Salt Lake City: In 1914, in all the popular magazines, there appeared articles on twilight sleep, telling the laity to ask the physician for it because they were entitled to have it during obstetric work. I tried to look up the subject, but found most of the men I wrote to discouraged me in the use of scopolamin, and most of the proprietary houses sent the drug out without instructions. One house did give instructions, and I began to use it in obstetric cases, and very satisfactorily. Several years ago I tried to do a submucous resection on a young man and had a great deal of trouble with him. He would roll his head from side to side, and it was impossible to anesthetize the septum locally. I insisted on trying again, and two or three days later prepared him for operation as I had prepared patients for obstetric work, and it worked so well that from that time on I used it as a routine. I have used it in all of my local tonsillectomies since. I have not used the dosage that Dr. Lewis does. I have a tablet containing ⅛ grain of morphin and 2/100 grain of scopolamin; for nasal work I use ¼ grain of morphin and 1/100 grain of scopolamin. I found that if I had the full dosage, patients did not sit up very well, and I like to do a tonsillectomy with the patient in a sitting position. I have done some operations with the patient in a simireclining position and have had good results by using ⅛ grain of morphin and 2/100 grain of scopolamin as the initial dose, and then every twenty minutes giving 1/16 grain of morphin and 1/400 grain of scopolamin and repeating that until the patient is asleep. That can be ordered beforehand on the chart in the hospital, and no time is lost in preparing. I find the advantages to lie in a reduction, or entire absence, of preoperative apprehension; a drying of the mucous membranes, which is of great importance in operating on the tonsils and nose, and the inability of the patients to remember. Even though they complain of pain at the time, if you question them afterward they do not remember anything about it, and that leaves a splendid impression with the patient.

DR. R. E. HOUSE, Ferris, Texas: Twenty-five years' experience with one drug will provide any one with a vast reservoir of direct and collateral information. Scopolamin is a very unusual drug and one with far-reaching possibilities, and there is no death on record from its use that we have been able to find. In the City Hospital at Dallas, Texas, in 1897 and 1898 Dr. Florence Rosser and I made every type of experiment with scopolamin. A 50-pound pig was given 1 grain of scopolamin, with no fatal results. Every man has his own technic, every man believes his is the best, and in that way the progress in the use of scopolamin has proceeded. The technic that is followed in obstetrics, the technic that is followed in surgery or in other fields in which this drug is used is different, but I wish to assure you that the nervous phenomena that you see manifested in some patients is no reason for alarm. Rather it indicates that more of the drug is needed, and I wish to assure you that there is no barrier against the use of scopolamin that is either formidable or unsurmountable. All that is required for success is caution, patience and individual achievement.

DR. H. T. BAILEY, Phoenix, Ariz.: I use this preparation in nose and throat surgery. I have only one point to make. The patient should be placed on an adjustable chair. Occasionally, after one has given the hypodermic and more often after using the procain or cocain which follows the hypodermic, the patient will have some symptoms of cyanosis, or pale face with perspiration, etc. At this moment, or just preceding it, if the chair is tipped so that the patient's head is as low as his feet or lower, the circulation will be restored, pallor or cyanosis leaves, and the chair can be raised and the operation proceeded with without fear or any more trouble.

DR. HAROLD M. HAYS, New York: I think the Committee on Local Anesthesia has definitely proved that we have less trouble with local anesthesia if morphin is given beforehand. It does not seem to me that Dr. Lewis should have entitled his paper "Hypodermic General Anesthesia." It is not general anesthesia, it is general analgesia, and there is quite a difference. In New York it was proved that we could get what is called "synergistic" analgesia with a combination of morphin and magnesium sulphate. This work was done by one of the prominent anesthetists of New York, and since then we have used this method. One-fourth grain of morphin is dissolved in 2 c.c. of a 25 per cent. solution of pure water and magnesium sulphate. Injection is made deep into the buttocks, and the patient allowed to wait one hour before operation. Sometimes the analgesia lasts from eight to sixteen hours. A year ago I had my own tonsils removed under local anesthesia by this method, and I was in a semiconscious condition for ten hours afterward.

DR. DAVID R. HIGBEE, San Diego, Calif.: More than two years ago I learned from Dr. Lewis this method of preparation for tonsillectomy. Since then I have used it in all cases. It has been so exceedingly satisfactory that I am glad to support the statements of Dr. Lewis. Dr. Lewis has done the operation on me and it was both analgesic and anesthetic. It is a method that one can use in a large clinic also when time is an element to be taken into consideration. With a nurse to give the hypodermic injections and prepare the patient, I have done as many as eleven in a part of one morning, the time probably averaging between fifteen and eighteen minutes. One feature worth mentioning is in regard to the time the patient is ready. When the drugs have disoriented him sufficiently to make him unsteady on his feet and not capable of executing the finger to nose test with precision and alacrity, the operation may be begun.

DR. CULLEN F. WELTY, San Francisco: I have never used scopolamin. Dr. House speaks of it with such confidence that it half inspires me to do something similar. I have never seen a patient die on the table from local or general anesthesia, and it seems to me that it would be fearful, and when one injects a heavy dose of anything there is always that fear. I once removed the tonsils of a child, 7 years old, under local anesthesia. The child was so seriously ill, I thought he would die anyway, so I took the chance. I was prepared to do anything, but got through without trouble.

DR. W. S. TOMLIN, Indianapolis: My early experience with scopolamin was not very satisfactory, and therefore I have in later years been somewhat afraid of it. That was in connection with neuropsychiatric work, and therefore should not be taken as a criterion of the advantages or disadvantages in the use of scopolamin. I encountered a great many cases in which scopolamin had exactly the opposite effect, and in a few cases in which we used it for so-called twilight sleep the percentage of cases of excitement was too high. Perhaps I did not use enough, but I used it according to directions. I would suggest another means of obtaining the same result by the use of codein and atropin. Codein must be used in a dose from six to eight times greater than that of morphin—from 1½ to 2 grains. In adults I use 2½ grains of codein to 1/150 grain of atropin. This can be used in cases of the depressive type. Morphin does not act well in the depressive type of case. Another experience that I have found of value is that in using codein there is not the after nausea that occurs so frequently with morphin, whether it is combined with scopolamin or not. Also the presence of a constipated condition which sometimes follows large doses of morphin is avoided by the use of codein.

DR. JOHN A. DONOVAN, Butte, Mont.: I have used scopolamin for twenty-five years as a cycloplegic. The first patient developed mild acute mania, and during that twenty-five years I have seen three cases of acute mania with delirium and hallucinations, but I am still using it. I do not use it as often in hypodermics as I did. In some cases it is of importance. Dr. Lewis spoke of local anesthesia. I have been succeeding nicely without hypodermics, simply getting psychologic control of the patients by suggestion, etc., without the hallucinations or after-vomiting which follow hypo-

dermic injections in many cases. In many cases a hypodermic is necessary to allay excessive fear. As a truth teller, that's a joke. In two or three cases I have had the opposite effect—deirium and hallucinations so that the patient would not allow operation at all. Two days is the longest I have known these hallucinations to last. Its particular objectionable feature in tonsil operations is that the patient will not spit out the oozing blood from the throat.

Dr. Burt R. Shurly, Detroit: After returning from the Mayo Clinic five years ago and witnessing there what appeared to be the most satisfactory effects from the use of scopolamin, I became enthusiastic and adopted that method of anesthesia in my own work, with great satisfaction. I had a few cases of delirium and some minor unpleasant results, but suduenly one of these patients who had been given the usual dose of scopolamin and a local anesthetic of 0.5 per cent. procain developed terrific convulsions, one after another, and it was only after the most strenuous efforts that she recovered from the resulting paralysis. This alarmed us, because we had given her four drugs—morphin, hyoscin, scopolamin and procain—and we were unable to determine which was the cause of the trouble. So I abandoned this method. Dr. Levy has had a fatal case from the use of scopolamin. This was in the removal of an epiglottis, and no cocain was used at all in that operation. The patient had a moderately advanced pulmonary tuberculosis. In twenty-eight years' experience I had one fatality with the use of 0.5 per cent. procain. Inside of three minutes the patient developed convulsions, and in spite of all we did he died. We carried out a very careful examination of everything that could possibly be brought out to show what had been the cause of the trouble, but we finally had to put it down to an idioscyncrasy.

Dr. Robert W. Miller, Los Angeles: A number of years ago I tried scopolamin in a few cases. I saw two cases in which there was considerable postoperative disturbance, hallucinations and great restlessness for two or three days. I have seen it in comparatively few cases since its early introduction. We have been told that the therapeutic effect of atropin, hyoscin and scopolamin are alike. I have not been inclined to think so. I think there is considerable resemblance in the action of these agents, but it seems that scopolamin is perhaps the most potent and exercises a more prolonged effect than the others. Perhaps it is fairly safe to say that they are all respiratory stimulants, and if we bear that in mind it will be more reassuring as to the danger in their use. So far as I know, scopolamin may not be a respiratory stimulant. I heartily approve of the use of codein as a substitute for morphin in younger patients. In regard to emergency cases, when we use cocain, and numbness of the extremities, etc., results, let us be sure that we have ether at hand so that the patient may have the immediate benefit of a few inhalations of ether, the physiologic antidote for cocain. We should always be prepared for these emergencies.

Dr. Geoffery Williams, Takoma, Md.: I have had opportunity to observe the action of combined morphin and scopolamin anesthesia in more than 2,500 cases. We use it in all our major surgery and we have never seen any trouble, except in some cases a tendency to depression and restlessness afterward; but that is easily cleared up. Many operations for severe toxic goiter we do under scopolamin and morphin anesthesia. We give ¼ grain of morphin and 1/100 grain of scopolamin. We have no trouble in giving the anesthetic, and the results are beautiful. In nasal and tonsil cases we have never yet had a patient complain during the operation. They do not appear to know anything about it. I would say, however, that we use a local anesthetic besides. With the us of morphin and scopolamin combined, there is no tendency to excitement, whereas scopolamin alone does excite. Also, one can do more work by using this preparation than by using a local anesthetic only. In many cases we have done a submucous resection, ethmoidal exenteration on both sides and a tonsillectomy at the same sitting without any trouble whatever.

Dr. Robert Levy, Denver: My use of morphin and scopolamin analgesia began in 1908 following a visit to Freiberg. I saw Block do mastoidectomies under morphin and scopolamin. I confined my work entirely to laryngologic cases and particularly laryngologic operations done under suspension. Many of the patients were tuberculous. The particular case that I mentioned to Dr. Shurly was that of a young man with moderately advanced tuberculosis, not very active, with fairly extensive tuberculosis of the epiglottis. He was given 1/100 grain of scopolamin and ¼ grain of morphin, two hours prior to operation. This dose was repeated an hour later, half the quantity, or one hour prior to operation. The operation was performed under suspension and without any great delay; but before it was completed the patient suddenly stopped breathing, and there was no response to any attempt we made to rescuscitate him.

Dr. Arthur C. Jones, Boise, Idaho: I have been using scopolamin for five years without any trouble, but I saw a case recently that is worth reporting. In this case a general anesthetic was started, but the man had considerable saliva, and the physician asked whether he could be given a hypodermic. He was given one injection, and in fifteen minutes there was some difficulty in breathing, and in twenty minutes he was dead. I give the usual dose to a patient weighing more than 120 pounds, and the smaller dose to lighter weights. For children I do not use it.

Dr. William B. Chamberlain, Cleveland: In connection with scopolamin and morphin do you use procain and epinephrin for local infiltration?

Dr. Wendell C. Phillips, New York: The fact that should be brought out that, in the collective investigation of anesthesia fatalities made by Dr. Loeb of St. Louis, my recollection is that the proportion of fatalities is far higher for this than for local anesthesia.

Dr. Eugene R. Lewis, Los Angeles: Dr. Trew mentioned the inconvenience to the operator. That has been my experience, in that there is no definite time one can begin the operation. However, it has more frequently transpired that I have been through an operation ten or twelve minutes after I entered the door. The point of view of the patients is paramount. We should make any reasonable concession to their point of view, and this is very much in favor of "complete analgesia" as Dr. Hays calls it; they have no memory of discomfort. Regarding the danger of scopolamin: This has come up a great many times and, of course, Dr. Levy's case is one of a number of deaths following its use; but in a careful analysis of cases one is led to believe that there are so many other possible causes of death, and such a lack of definite testimony that death was caused from the drug, that a question is raised in our minds on this point. Take, for instance, the case of convulsions Dr. Shurly cited. Nowhere is there any reference of convulsions being characteristic of the effect of scopolamin. On the contrary, it is my belief and experience that with cocain and procain, convulsions are characteristic of poisoning by that group of alkaloids. Dr. Kelley asked about the safety in using it in children. I have used it as early as 7 years. I have used it in many cases below 10 years. The stimulating effect of any operative procedure is in itself a great safeguard to the patient who has been given morphin. He requires active stimulation, and the operative manipulation furnishes that stimulation. Dr. Broaddus spoke of the broken dosage as being satisfactory. There is nothing to show that this is not right if one wishes to give it this way. The use of codein and atropin will unquestionably give satisfactory results. There is no one royal road. Dr. House's experience is much larger than that of any of us. Dr. Hays spoke of "general analgesia." I believe his point is well taken. We can produce what is exactly as effective to the patient as what I spoke of as "general anesthesia." I have used this many times in cases of extensive mastoid operation when I had to use blows on eburnated bone that I felt would almost injure something by counterstroke, but without any difficulty on the part of the patient. I think it produces, in effect, a general anesthesia. Dr. Hays asked when the patients are ready. We have no rule, but I think as soon as we acquire familiarity with this we shall be able to judge from the general comportment of the patient whether we should wait a few minutes longer or proceed at once. Dr. Donovan spoke of delirium and mania. I

have seen such effects produced by scopolamin. But this is not dangerous, it is only annoying to the operator; it does not impair the desirable effect of the drug on the patient. They have no memory of any unpleasant association with the operation. Dr. Shurly spoke of unpleasant complications when he had used procain. The convulsions could be more properly attributed to procain than to anything else he used. I have been using this method since 1906, and I should say very conservatively that we have had between 1,500 and 2,000 cases.

POISONING BY FOOD PROBABLY DUE TO CONTAMINATION WITH CERTAIN BACTERIA

EPIDEMIOLOGIC ANALYSIS OF SEVEN HUNDRED AND FORTY-NINE REPORTED OUTBREAKS IN THE UNITED STATES

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Food poisoning, as it is understood today, is the result, directly or indirectly, of the contamination of food with certain bacterial organisms, and clinically it may be classified as an intoxication. However, it is recognized that, in the consumption of food contaminated with the paratyphoid group of bacteria, infections may occur. It is significant that none have been recorded in the data presented in this paper. The foregoing point of view regarding food poisoning is accepted or broadly interpreted throughout this paper, and no attempt will be made to discuss any other phase of food poisoning due to fungi, idiosyncrasies, the comparatively rare disease known as "milk sickness," the dietary deficiency diseases or the obvious danger from the animal parasitic diseases. When the term general food poisoning is used, there is meant poisonings by food probably contaminated with the paratyphoid group or other organisms, and these, on account of the number reported, are of importance to public health agencies. Likewise, this type of poisoning, along with the food intoxications caused by *B. botulinus*, represent those to which common usage has generally limited this far embracing term.

With the growth of scientific knowledge regarding the specific dangers of contaminated food, there has been a more intelligent appreciation on the part of laymen and of health officials of the comprehensive measures that have usually been adopted for control in the distribution, handling and processing of food whether it is canned or not. It is probably as old a condition as any of those diseases affecting the human being, and consequently has been known by a much varied terminology. Ptomain poisoning, ice cream poisoning, tinned food poisoning, sausage poisoning, cheese poisoning and meat poisoning, or any other particular kind of food suspected, have been given as the cause of different outbreaks, usually without epidemiologic or bacteriologic investigation. The foods that can be directly classified and identified with poisonings are mushrooms, milk and certain others.

This descriptive terminology undoubtedly has led to a complexity of diagnosis which has been further complicated by the recognition that certain preserved foods can contain a most virulent and thermolabile toxin, causing, as a result when ingested, the socalled *B. botulinus* intoxication. Whether all food poisonings of the type under discussion are intoxications is still not an absolutely proved clinical or epidemiologic fact, although it is fairly well established that experimentally the paratyphoid-enteritidis group of organisms may produce thermostabile toxins which, when injected, will prove fatal to certain laboratory animals or produce characteristic symptoms in them.

The recognition of this type of food poisoning, clinically, should present very little difficulty, whether the condition is due to food contaminated with the paratyphoid group or with the toxin of *B. botulinus*, as each causes totally dissimilar symptoms. Likewise, the laboratory procedures incident to the isolation of the paratyphoid group from, and the determination of the presence of, the toxin of *B. botulinus* in foods are technically well known. Therefore, if we recognize that there are two groups of food poisoning due to contamination with bacteria, easily differentiated clinically and from a laboratory standpoint, the investigative problem is comparatively simple. However, in the majority of the outbreaks recorded, the well known facts mentioned above are overlooked either because of the limited duration of the illness or because of incomplete epidemiologic, bacteriologic or toxicologic investigation.

SOURCE OF THE STATISTICS

This epidemiologic study of 749 outbreaks includes data gained from personal field investigations of reported outbreaks and from the records of various health departments, during 1922. The data previous to this and including the period 1910-1921 (599 outbreaks) were obtained from the records of the National Canners Association, which records were turned over for the purpose of epidemiologic study. The records of the National Canners Association represent almost entirely the work of Dr. Robert S. Page [1] of Bel Air, Md., of whose enthusiasm and early knowledge of the subject too much cannot be said.

The majority of the outbreaks here recorded and included in this study are alleged to have been due to preserved foods. The sources of these statistics are practically similar, as they include only those outbreaks reported either to health departments and to the National Canners Association, or obtained from the daily files of newspapers.

The history of the commercial preservation of food not only has its economic aspects but also represents scientifically controlled efforts for improvement. The investigations conducted by Dr. Page for the National Canners Association, as demonstrated by the records freely turned over for this study, indicate a fundamental desire to acquire accurate statistics as to the safety of preserved foods. There is ample evidence from our own investigations that there is an offhand tendency to blame preserved food for illnesses diagnosed as food poisoning without previous investigations or foundation in facts.

Since cases of food poisoning are rarely made legally reportable in the United States, these statistics representing the first compilation of its kind are by no means complete. From these statistics, however, certain conclusions can be drawn with some degree of certainty.

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1. Dr. Robert S. Page was born in Baltimore, Oct. 23, 1874, and died in Bel Air, Md., Dec. 22, 1920. Dr. Page obtained his scholastic and medical training from the schools of the city of Baltimore, the City College, Johns Hopkins University, and the University of Maryland. Dr. Page also took graduate work at the Johns Hopkins Medical School. His interest in food poisoning was stimulated by his connection with the National Canners Association.

MORTALITY STATISTICS OF FOOD POISONING IN THE UNITED STATES

A study of the mortality statistics regarding food poisoning reveals the interesting fact of a steady increase. The difficulties attendant on the classification as a cause of death indicate to the experienced investigator that these statistics, at their best, are inaccurate. It will be seen from the recorded data used in this study that physicians and others have made imperfect, inconclusive and incorrect returns as to the cause of death, as indicated by subsequent necropsies. Consequently, we have no comparable data as to the real incidence of food poisoning in the United States, and it is decidedly necessary that we approach any compilation with caution. Since 1910 and including 1920, there have been reported in the United States Census Bureau 7,316 deaths attributed to poisoning by food, as shown by Chart 1. The increase has been gradual but steady, and should be regarded with some degree of apprehension. For instance, in 1910 there were reported 157 deaths, while in 1920 there were 957, an increase of 800 deaths a year in the periods under consideration.

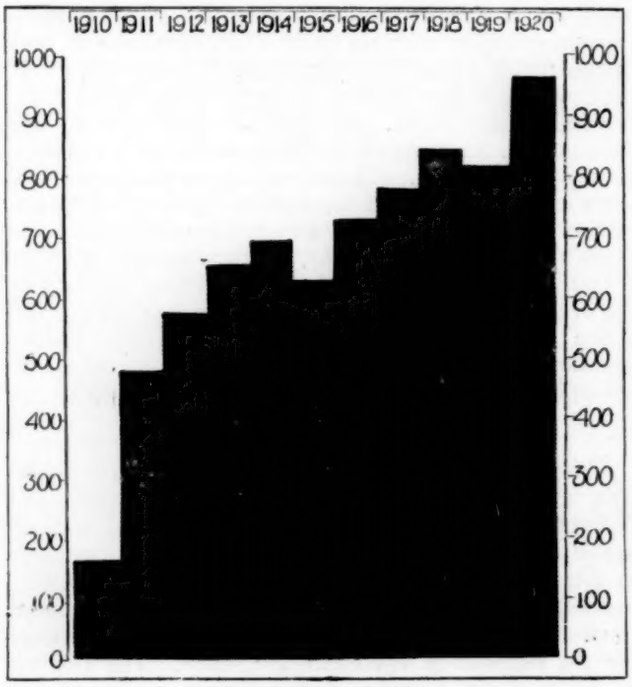

Chart 1.—Mortality from food poisoning, 1910 to 1920.

In our survey, which includes 749 outbreaks, involving 5,210 persons with 399 deaths between 1910 and 1922, inclusive, the percentage case mortality was 7.6, or approximately 7.5. If this percentage case mortality is accurate, then we have had approximately 12,500 cases of food poisoning in 1920, and approximately 98,000 cases for the period of 1910-1920, inclusive. However, it will be shown later that the percentage case mortality of our data can be materially reduced when we analyze the results of necropsies and separate the outbreaks due to botulinus intoxications.

For instance, in the records of 749 reported outbreaks under consideration, we have reports of forty-four outbreaks of botulism, with 172 persons made ill. Of this number, 140 died, a percentage case mortality of 80. If we separated this group of cases from those of general food poisoning, we should have of the latter in this series a percentage case mortality of 4.1 instead of 7.5.

In addition, there are records of forty necropsies at which the previous cause of death has been given usually as "ptomain poisoning," which diagnosis had to be subsequently changed. Likewise, there can be included data regarding eleven instances with nineteen deaths of metallic poisoning, due, as the evidence indicates, to murder, suicide or accidental causes. Eliminating these erroneously recorded deaths (fifty-nine) from the number previously given as having been due to food poisoning, we have a further reduction of the percentage case mortality from 4.1 to 3.1.

From experience in investigations completed during the past year, this case mortality rate in general food poisoning is obviously too high. This opinion is further substantiated by the results shown above of the comparatively few necropsies performed which indicate that food poisoning or "ptomain poisoning" is given not infrequently in error, as a cause of death.

Mayer [2] states that in Germany in forty-eight outbreaks attributed to *B. enteritidis* and in seventy-seven outbreaks attributed to *B. paratyphosus* B or *B. suipestifer*, there were approximately 4,000 cases with forty deaths, a percentage case mortality of 1. Savage [3] states that in 112 outbreaks in England, involving 6,190 cases with ninety-four deaths, the percentage case mortality was 1.5. A careful search of our records was made, and only those outbreaks were considered in which either the epidemiologic or the laboratory evidence was fairly conclusive that the paratyphoid group was the contaminating organism of the causative food poison. Of these, in the 749 outbreaks studied, there are fifty-four outbreaks involving 2,219 persons with eleven deaths, a percentage case mortality of less than 0.5.

Therefore, if one should determine the average case mortality of the German statistics, 1; British, 1.5, and that of our own selected outbreaks, 0.5, we have a rate of 1, which probably is representative of general food poisoning. Contrasting this rate with that of the outbreaks in this series due to botulinus intoxications, 80, one can readily note that there is need for a statistical regrouping and classification, probably on this basis

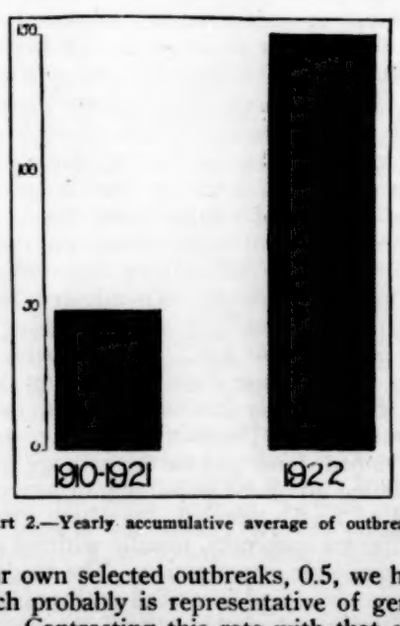

Chart 2.—Yearly accumulative average of outbreaks.

2. Mayer: Deutsche. Vierteljahrsschrift für öffentliche Gesundheitspflege. 45: 1913.
3. Savage: Food Poisoning and Infection, Cambridge University Press, 1920, p. 49.

alone, of the mortality of food poisoning, without taking into consideration the deaths caused by the ingestion of poisonous fungi, etc.

EPIDEMIOLOGIC ANALYSIS OF DATA

During the periods 1910-1921 inclusive (twelve years), 599 investigations were made, or that number of outbreaks of alleged food poisoning were reported, and are recorded in this study. The accumulative average each year of investigations or reported outbreaks for the periods mentioned is approximately 50.

During 1922 (Chart 2), 150 investigations were made, which number is just triple the accumulative yearly average for the periods stated.

It is appreciated that our knowledge of the extent of food poisoning is deficient, and that the reported outbreaks do not represent the actual number that have occurred. Nevertheless, the definite increase for 1922 could be regarded of some statistical importance if the underlying reasons were not made known. At the beginning of our study of the problem of general food poisoning, all health officials in the United States were circularized in an attempt to arouse their interest. Likewise, we have diligently and systematically followed up reports of outbreaks in the daily press.

Either one of the foregoing explanations would probably account for the apparent increase in outbreaks for 1922, yet it is not unlikely that this increase falls far short of the actual number that did occur.

SEASONABLE DISTRIBUTION

A study of Chart 3 indicates no striking seasonable prevalence. In fact, an average of seventy outbreaks were reported in the winter months, and sixty in the summer. It has been thought that the temperature of the summer months plays a definite rôle in food poisoning by increasing the number of the contaminating bacteria, yet it is probable that this occurs as frequently in the preparation and cooking of the food. The fact that in this study the majority of outbreaks are attributed to canned foods may account for the increased prevalence in winter. On the other hand, the data included in this chart would seem to indicate that the consumption of preserved food is not limited to any particular season in the United States.

TABLE 1.—*Geographic Distribution of Outbreaks*

East		Middle West		South		West	
New York	139	Illinois	66	Maryland	17	California	41
Pennsylvania	59	Ohio	43	Missouri	17	(15 botulism)	
Massachusetts	44	Minnesota	22	Texas	14	Washington	22
New Jersey	35	Indiana	20	Alabama	11	(10 botulism)	
		Iowa	19	Kentucky	11	Colorado	13
		Wisconsin	15	Georgia	11		
		Michigan	13				
	277		198		81		76

To ascertain whether there was any definite concentration as to geographic areas, the divisions shown in Table 1 were arbitrarily selected. Only those states in which ten or more outbreaks had occurred were considered. A study of Table 1 apparently indicates that there is a concentration of outbreaks that is not altogether explained by density of population. In certain cities like New York, Brooklyn, Boston, Pittsburgh, Chicago and Baltimore, but particularly New York, Brooklyn and Boston, numerous outbreaks are reported which in turn affect the pro rata of the states in which they are situated. When, however, we take into consideration the population of the group of states mentioned, and of reported outbreaks accredited to each group, we have, approximately, a ratio of one outbreak reported to every hundred thousand inhabitants in the Eastern group; 1 to 130,000 in the Middle West group; 1 to 212,000 in the Southern group, and 1 to every 77,000 in the Western group.

Outbreaks have been reported from forty-seven states, and there is included in this study three outbreaks that have occurred in England, three in Canada, one in Hawaii and one on shipboard at sea. Comparatively, the ratio of outbreaks from the East to the Middle West is 1.4 to 1, and from the East to the South and West 3.4 and 3.6 to 1, respectively. It is exceedingly interesting to note that of the outbreaks occurring in California, approximately one third, and in Washington over one half, were botulism. Of the botulism outbreaks, thirty-eight occurred in Western states, and in one of these the food was preserved in the Middle West. Eleven outbreaks of botulism occurred in the East, South and Middle West, and in five of these the causative food was preserved in the West.

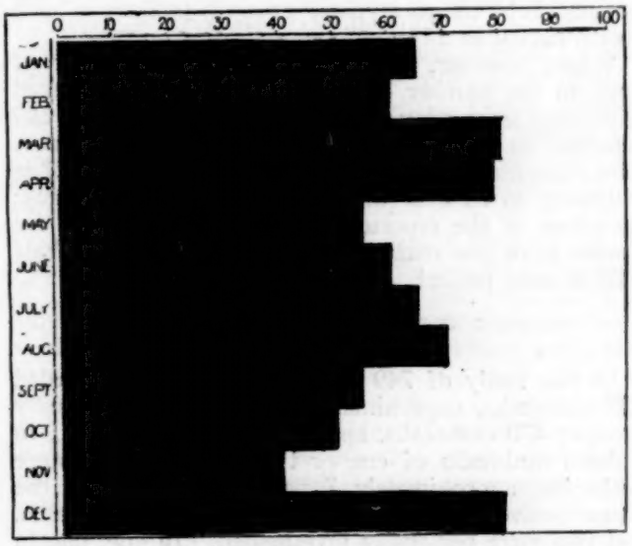

Chart 3.—Seasonal distribution by months of outbreaks, 1920 to 1922.

ALLEGED CAUSATIVE FOODS

Of the alleged causative foods, 601 were commercially preserved and 131 prepared in the home, a ratio of about 5 to 1. Table 2 indicates briefly the various types of food involved; namely, meat products, fish, vegetables and fruit. It was found necessary to add soup to those commercially preserved, and milk was placed in both types of prepared food.

TABLE 2.—*Types of Food Involved*

	Meat	Fish	Vegetables	Fruit	Soup	Milk
Commercially preserved	38	209	237	38	55	29
Home prepared	45	5	48	9	..	20

Of the commercially prepared meat products, beef (18) heads the list; of fish, salmon (149) and sardines (35); of vegetables, tomatoes (54), corn (54), beans (49), string beans (30), pork and beans (19) and peas (45); of fruit, peaches (15) and olives (10). Of the home prepared meat products, beef (19), sausage (11) and pork (8); of fish, salmon (3); of vegetables,

string beans (15), corn (11) and asparagus (6); of fruit, apricots (4) and peaches (2).

It will be noted that there is a tendency to incriminate commercially canned foods. Such foods have the advantage over other types of food by being relatively free from human contact, usually prepared in sanitary plants and from fresh material. But most important, there is properly controlled sterilization based on scientifically acquired experimental data. Therefore, contamination by the paratyphoid group is unlikely in such foods, except in a "leaky" can and after opening.

When, however, one attempts to figure the ratio of pack to the number of outbreaks, one is confronted with some interesting data. For instance, we have 149 reported outbreaks from commercially canned salmon. The American salmon pack for the years 1910-1922 is estimated to be over three and one-half billion cans; therefore, if the reported outbreaks were proved, we should have one outbreak to every two and one-half million cans packed.

FAMILY GROUPS, ISOLATED CASES AND LARGE OUTBREAKS

In this study of 749 outbreaks, there are recorded 222 outbreaks, approximately 30 per cent., in family groups; 470 outbreaks, approximately 64 per cent., in isolated outbreaks of one or two cases, and 57 large outbreaks, approximately 7 per cent. Three of the latter involved over a thousand persons with no deaths, and two were personally investigated. In one, due to home-prepared cream sauce, *B. paratyphosus* A was isolated from both the sauce and the stools of the patients. In the other, due to a home-prepared ground beef sandwich, *B. paratyphosus* B was isolated from the food. The comparatively larger number of isolated outbreaks is an indication of how difficult of solution the situation regarding food poisoning is. It is unusual for these outbreaks to be reported early enough so that they may be investigated, epidemiologically and bacteriologically. Therefore, it is not unlikely that many foods are blamed for the illness when they are not at fault, and that the condition is improperly or hastily diagnosed.

AGE AND SEX DISTRIBUTION

In our assembled data, it was found impossible to make a special study of age and sex distribution. It could be stated that there were no indications of any specific sex or age incidence. We have records of eighty-seven cases of illness classified as food or ptomain poisoning among children. Of these, there were forty-three deaths, a percentage case mortality of about 50. With such a high case mortality rate, there is a reasonable assumption that they are due to causes other than food poisoning. This opinion seems to be fully borne out in a study of these selected cases, and will be discussed when the original diagnoses are considered.

PHYSICAL APPEARANCE OF THE ALLEGED CAUSATIVE FOOD

In the data we have assembled, there are three outbreaks which were personally investigated and in which there has been isolated, from either the food or the excreta of the persons made ill, *B. paratyphosus* A, *B. paratyphosus* B and *B. enteritidis*, respectively. In these outbreaks, the foods, cream sauce, meat sandwich and meat stew were stated to have been normal in odor, taste and texture. Of the 749 outbreaks in this study, in eighty-seven the food was regarded as spoiled or "off" in taste or odor. Of these, thirty-four were outbreaks of botulism. The description of the food was given as "spoiled" in fifty instances, "bad" in seven, "not good" in five, "sour" in five, and the remainder as "peculiar," "offensive," "putrid," "off" and "biting." The taste was regarded as metallic in two instances, and in two the odor of phenol (carbolic acid) and ink were definitely detected in the can. The latter were probably criminal "sabotage" cases, or due to some leakage of the coding ink into the can at the time the code number of the pack was applied, such inks having phenol as a preservative.

In six instances, the canned goods used were described as swells, and in one of these (St. Paul), a woman who became ill stated frankly that she was living well on discarded canned goods from the city "dump." In two, the canned goods, corn and peas, were said to have been left in the can for several hours. The latter alleged outbreaks were carefully gone into; in neither were the cases clinically regarded as food poisoning, and the epidemiologic evidence was far from being complete and definite. There is a reasonable doubt that most canned foods, when allowed to remain open in the can for several hours, will cause symptoms of food poisoning unless they are subsequently contaminated or previously toxic.

It was very interesting to note that in our data there were nineteen instances of canned food alleged to contain foreign articles. Of these, "glass" was said to have been present in four instances; "black specks or articles" in two; "worms" in two; "spiders" in two; "nails" in two, and of the remainder, in one instance each, "bugs," "metal," "rats," "tack," "mouse," "matches" and a "snake." A careful scrutiny of these indicates that many were probably wilful attempts to secure money.

CLINICAL ANALYSIS OF DATA

It has been stated before that in our data there are fifty-four outbreaks suspected as being due to food contaminated with the paratyphoid group. The majority of these are not supported by laboratory evidence. A careful search of our records shows that in 749 outbreaks, excluding those caused by the toxin of *B. botulinus*, only thirty-nine are supported by laboratory evidence. Of these, thirty are negative. This preponderance of negative results which were recorded mainly from the examinations of the suspected food is probably due to some epidemiologic error in the determination of the causative food. Unfortunately, the food in many outbreaks has been entirely consumed at the time of the suspected meal, and the delay in investigation may be such that examination of patients' excreta would be a doubtful procedure. Moreover, from our experience it could be stated that the limit of delay for investigation, at least in the examination of stools, should never be more than one week, and even then it is not likely that positive or supportive laboratory evidence will be secured, unless carriers are to be searched for or unless there is evidence of a true infection. In this regard, Krumwiede[4] states that in an examination of stools from patients suspected of paratyphoid, it was during the first week that the highest percentage of positive results was obtained. Experimentally, when laboratory animals such as rabbits are fed with cultures containing large numbers of bacteria of the paratyphoid group, it has been our observation

4. Krumwiede, C., Jr.: J. Infect. Dis. **21**: 141 (Aug.) 1917.

that symptoms of food poisoning are rarely produced, and that the organisms cannot be demonstrated in the feces after from twenty-four to forty-eight hours.

We have records of nine outbreaks in which the laboratory results have been apparently conclusive. Table 3 briefly indicates the results obtained from examination of the suspected foods. In addition, in the Rockford, Ill., outbreak, *B. paratyphosus* A was isolated from the stool of one of the patients; *B. paratyphosus* B was isolated from the stools of four patients

TABLE 3.—*Results Obtained from Examination of the Suspected Foods*

Place	Food	Organism Isolated	Investigator
Birmingham, Ala..	Home prepared meat sandwich	B. paratyphosus B	U. S. Public Health Service; Univ. of Chicago
Rockford, Ill.....	Home prepared cream sauce	B. paratyphosus A	U. S. Public Health Service; Univ. of Chicago
Hagerstown, Md...	Home prepared meat stew	B. enteritidis	U. S. Public Health Service; Md. State Board of Health; University of Chicago
New Haven, Conn.	Home prepared egg salad	B. paratyphosus B	C.-E. A. Winslow, Yale Univ. (personal communication)
New York.....	Home prepared cream pie	B. aerogenes capsulatus and B. coli	N. Y. City board of health
Oakland, Calif.....	Commercially prepared (canned) corn	B. paratyphosus B	Univ. of California; U. S. Public Health Service; U. S. Bureau of Chemistry, Western District
Penn Yann, N. Y...	Home prepared hamburger steak	B. paratyphosus B	New York State Dept. of Health; U. S. Public Health Service
Hagerstown, Md...	Home prepared hamburger steak	B. vulgaris (proteus)	U. S. Public Health Service; Md. State Board of Health; University of Chicago
Seattle.....	Commercially prepared ice cream	B. paratyphosus B	City and state board of health; University of Washington (personal communication)

ill in the Penn Yann, N. Y., outbreak. Likewise, in one of the outbreaks in this series occurring in England, on the battleship *London,* in September, 1911, in four cases, one of them fatal, alleged to have been due to commercially canned peas, *B. enteritidis* was isolated from the stomach and small intestine of the patient who died, but not from the peas. In no instance was the suspicious food in the outbreaks listed in this table abnormal in odor, taste or texture.

AGGLUTINATIONS

Owing to delay in investigation, the absence of the suspected food, or the unsatisfactory nature of the material available for laboratory examination, the actual bacterial cause of an outbreak of food poisoning may not be ascertained. Because of this, agglutinations of the blood serums of the persons made ill have been suggested by various investigators in this field. Only in five of the outbreaks included in our data has this laboratory procedure been used. The results are interesting but are far from being conclusive or helpful. The many contributory and dependent factors in this test, such as previous vaccination, with triple type vaccines, the negative bacteriologic findings of a specific organism in the suspected food, the comparatively short duration of the illness, the coagglutinins demonstrable among the paratyphoid group, and the absence of definite information as to such reaction in the normal individual make agglutinations a doubtful diagnostic procedure in food poisoning. In an outbreak of food poisoning, Bernstein and Fish[5] report that sixty persons were made ill, and four deaths resulted. The causative food was home-prepared pastry, *B. paratyphosus* B being isolated from this food. From the persons affected, ten dried specimens of blood were obtained, of which, when tested one month after the onset of symptoms, five were positive, three showed partial agglutination, and two were negative when run against the specific bacterial strain isolated from the pastry. The dilution of tests with the dried blood was not given. However, a sample of blood serum collected twenty-four days after the onset of symptoms from one patient who suffered severely agglutinated a strain of *B. paratyphosus* B completely in dilutions through 1:100 and partially agglutinated in 1:200 dilution. The blood serum likewise agglutinated *B. typhosus* and Specific Strain 4, isolated from the pastry in 1:200 dilution, and agglutinated *B. paratyphosus* A in 1:10 dilutions.

Again, Foard and Walker[6] report an outbreak of forty-four cases of food poisoning due to headcheese, *B. paratyphosus* B being isolated from the stools in three cases; from the blood cultures obtained, two were positive for *B. paratyphosus* B. Widal tests were made in twenty cases in 1:40 dilutions. Of these, nineteen were positive for *B. paratyphosus* B; nine for *B. typhosus,* and all were negative for *B. paratyphosus* A. Rosher and Fielden,[7] report that more than 1,000 normal serums were tested against organisms of the paratyphoid group, of which accurate information regarding previous antityphoid inoculation was secured for more than one third. Rosher found 29 per cent. in dilutions of 1:20 and higher agglutinated *B. typhosus;* 17 per cent., *B. paratyphosus* A; 23 per cent., *B. paratyphosus* B; 8 per cent., *B. paratyphosus* C; 16 per cent., *B. aertrycke,* and 11 per cent., *B. enteritidis* (Gaertner).

Rosenau and Weiss[8] report an outbreak of food poisoning that occurred in Washington, D. C., among students of Georgetown Medical School. The causative food proved to be bread pudding. Eighteen of the twenty-five students partaking of the meal were made ill, with typical symptoms of paratyphoid-enteritidis poisoning. The organism isolated from the bread

TABLE 4.—*Results of Agglutination Tests Made at Hagerstown, Md.*

Place	Date	Suspected Food	Specific Organism Isolated	Agglutinations in 1:40 Dil. 2 Wks. Later
Security, Md.	Nov. 14, 1921	Meat stew	B. enteritidis from meat from which stew was made	8 examined, 5 positive

pudding gave positive agglutination results in 1:1,000 dilution, with specific *B. enteritidis* serum. Ten days after the onset of symptoms, blood serum for agglutination tests was obtained from three students. The results of the agglutination tests showed specific reactions for each of the four strains isolated from the bread pudding, and also for a type of strain of *B. enteritidis.* No agglutination in a 1:50 dilution was obtained with *B. typhosus, B. paratyphosus* A or *B. coli.*

In our data, the following results of agglutinations are briefly shown in Table 4.

5. Bernstein, H. S., and Fish, E. S.: Food Poisoning, J. A. M. A. **66**: 167 (Jan. 15) 1916.

6. Foard, F. T., and Walker, T. H.: Pub. Health Rep. **36**: 2095 (Sept. 2) 1921.

7. Rosher, A. B., and Fielden, W. A.: Lancet **1**: 1088 (June 3) 1922.

8. Rosenau, M. J., and Weiss, Harry: Food Infections, J. A. M. A. **77**: 1948-1951 (Dec. 17) 1921.

The agglutination reactions of the blood serums of thirteen uninoculated persons who were ill in the three Rockford College outbreaks, at Rockford, Ill., are given briefly in Table 5, tested six weeks after the onset of the last outbreak.

TABLE 5.—*Agglutination Reactions Made During Outbreaks at Rockford, Ill.*

B. Typhosus			(From Milk) B. Paratyphosus A			(Stools) B. Paratyphosus A			B. Paratyphosus B		
1:40	1:80	1:160	1:40	1:80	1:160	1:40	1:80	1:160	1:40	1:80	1:160
4	2	—	9	9	3	10	8	2	4	3	—

Serums from eight other uninoculated students gave entirely negative agglutination results in a 1:40 dilution with the organisms specified in Table 5; one of these students had been ill in the first outbreak, one in the second, three in both first and second, and five in all three outbreaks. Twenty serums of previously uninoculated persons who were affected in the Birmingham, Ala., outbreak were tested for agglutinative power on four cultures, seven days after the onset.

Fresh specimens of serums from four persons showing the highest agglutination were obtained three months later, Jan. 3, 1923, and tested against all four cultures; none of them produced any agglutination in a 1:80 dilution with any culture, including the specific strain isolated.

In addition, there are two records of outbreaks in our series in which agglutinations were made: Rockford, Vt., in two cases in which the causative food was alleged to have been commercially canned tomatoes; the dilutions are not known but the test was stated to be positive when run against *B. typhosus* and *B. paratyphosus* A, and *B. paratyphosus* B; Paterson, N. J., in two cases in which the causative food was alleged to have been commercially canned crab meat; the agglutination tests were stated to have been negative when run against both *B. parataphosus* A and B.

TABLE 6.—*Birmingham, Ala., Meat Sandwich Outbreak*

B. Typhosus			B. Paratyphosus A			B. Paratyphosus B			B. Paratyphosus B from Sandwich		
1:80	1:160	1:320	1:80	1:160	1:320	1:80	1:160	1:320	1:80	1:160	1:320
—	—	—	—	—	—	—	—	—	+ —	+ —	+ —
Number of serums showing reaction.....									13 4	4 16	2 18

INCUBATION PERIOD

Epidemiologically, the incubation period offers the best information for the differentiation of the two types of food poisoning discussed in this paper. There are exceptions in both types, but it can be stated that for general purposes the incubation period of the cases of the type of general food poisoning is from about three to twelve hours, while that of botulinus intoxication is from twenty-four to forty-eight hours. There is always some period of incubation; therefore, when persons partaking of a meal complain of illness immediately or closely following it, a diagnosis of food poisoning should be made only after exhausting every other diagnostic possibility. Under such conditions it would not be unlikely that the food was consumed at a previous meal. Again, this variability of the incubation period and in some instances the remarkably early appearance of clinical symptoms may be explained by variation in numbers and virulence of the contaminating bacteria. Certainly, in most instances, in order to develop food poisoning, there must be ingested with the causative food a large number of bacteria, the number depending, of course, on the method of preparation of the food, the resulting incubation temperature, the length of time the food is exposed to such a temperature, and the original number of the bacterial inoculum. It is doubtful whether organisms of the paratyphoid group can produce thermostabile toxic substances unless the food has been exposed to an incubation temperature of at least 37 C. for several hours. In our data, there are thirty-eight outbreaks especially selected as being probably due to food contaminated with the paratyphoid group of organisms in which the incubation period can be studied. In seven of these, the laboratory data were apparently conclusive. Tables 7 and 8 give briefly the incubation periods noted in both types of food poisoning in our series.

TABLE 7.—*General Food Poisoning*

Incubation period in hours.....	2	3	4	5	6	8	10	12	24
Number of outbreaks noted.....	4	13	12	2	16	6	1	2	1

TABLE 8.—*Botulism*

Incubation period in hours.....	Before 24 Hrs.*	24	36	48
Number of outbreaks noted.....	4	12	2	3

* The exact time of onset was doubtful, but never less than twelve hours, and was accompanied by a history of the consumption of a large amount of the causative food.

INFECTIVITY RATE

The infectivity rate seems to be a variable factor, yet we have no conclusive evidence, as far as food contaminated with the paratyphoid group is concerned, except in the third Rockford outbreak (*B. paratyphosus* A); Birmingham (*B. paratyphosus* B), and Hagerstown (*B. enteritidis*). In these outbreaks, the infectivity rate varied from 75 to 100 per cent. In outbreaks due to foods contaminated with the toxin of *B. botulinus*, the infectivity rate is rarely less than 100 per cent. of those partaking of the causative meal. It is this high morbidity incidence which seems definitely manifest in all proved outbreaks in both types of food poisoning that generally offers, by elimination, an easy method for the determination of the food acting as a vehicle of transmission of the causative organisms or toxin, or both.

ORIGINAL DIAGNOSIS

In 404 outbreaks, approximately 54 per cent. of the 749 in our series, the diagnoses were given as "ptomain poisoning" by physicians. It is interesting to record that in 147 (approximately 20 per cent.) additional outbreaks, this was likewise the diagnosis by newspapers carrying the reports of the occurrences. Clinically, the responsibility of correct diagnosis in food poisoning rests on the physician and health officials. Our records indicate the universality of usage of the term "ptomain posoning" by both physicians and the laity. It will probably continue to be used, and whether cases are so diagnosed or not, it seems a diagnosis of convenience, and foods are blamed without proper epidemiologic, bacteriologic or toxicologic investigation. Moreover, we have carefully scrutinized the diagnoses and analyzed the outbreaks as far as the reports allowed this to be possible. The results are rather startling, and

were obtained by reconstructing the clinical histories in the outbreaks with the idea of determining the true diagnosis either from symptoms or from subsequent necropsies and laboratory investigations. Accordingly, in 212 outbreaks, approximately 28 per cent., the assembled data indicated conditions other than food poisoning. There were indications of appendicitis, tuberculosis, meningitis, various infectious diseases and pregnancy. It is true that many of the reconstructed histories with the change of diagnoses are not absolutely proved. Nevertheless, the same could be said about the diagnosis of "ptomain poisoning." The results of necropsies, which will be noted later. and the absence of supportive laboratory data in many hundreds of outbreaks is more than presumptive evidence that the original diagnoses of "ptomain posoning" were neither accurate nor correct. In addition, thirteen outbreaks of so-called "ptomain" poisoning were proved by investigations to be "fake" stories. Three others were "jokes," and in another three outbreaks the illness was evidently due to idiosyncrasies of the persons affected for the food ingested.

RESULTS OF NECROPSIES

Several references have been made to the result of the necropsies performed in our series and their effect on the original diagnoses. In all, forty necropsies, approximately 16 per cent., were performed in 259 deaths reported as having been due to "ptomain poisoning." It is extraordinarily interesting and important to note that in every instance the original diagnosis was changed to conditions which in some were clinically totally dissimilar. For instance, the final anatomic and pathologic diagnoses were: meningitis, five; nephritis, four; intestinal obstruction, four; lobar pneumonia, three; pregnancy, three; wood alcohol, three, and appendicitis, three; and one each, duodenal ulcer, typhoid fever, endocarditis, diphtheria, epilepsy, carbon monoxid poisoning, septicemia, embolism, syphilis, hemiplegia, bacillary dysentery, malaria, status lymphaticus and cardiac disease.

In addition, there are in our series eleven outbreaks, with nineteen deaths, in which the evidence is fairly complete that they were either murders, suicides or accidents. The cause of death was some poisonous metallic substance with which the food was impregnated.

COMMENT

From the literature and our observations, food poisoning is not an infrequent occurrence in the United States, but few investigations, at least, of those caused by contamination with certain bacteria have been successfully completed. Jordan [9] writes:

> Probably several thousand outbreaks of food poisoning in families and larger groups, affecting at least 15,000 to 20,000 persons, occur in the United States in the course of the year. Proper investigation of the origin of an outbreak is so rarely carried out that the articles of food ordinarily accused are selected rather as the result of popular prejudice and tradition than of careful inquiry.

The recent medical literature applies to few outbreaks of poisoning by food due to bacterial contamination that have occurred in the United States. Among them are to be mentioned the selected reports by Bernstein and Fish: [10] causative food, homemade pies (organism isolated from the pie); Krumwiede, Provost and Cooper: [11] causative food, tapioca pudding (organism isolated from the tapioca pudding) and from the liver of a patient who died; Foard and Walker: [6] causative food, headcheese (organism isolated from headcheese and three fecal samples); Rosenau and Weiss: [8] causative food, bread pudding (organism isolated from the bread pudding).

The relation of botulism to the problem is fully covered in Public Health Bulletin 127, and needs no comment here except to mention that since this report was submitted (November, 1921), thirty additional outbreaks have occurred.

Poisonings by metallic substances have been mentioned, but it is interesting to state that, in this study, poisoning from tin has not been reported. Only one outbreak has been reported as being due to poisonous fungi (mushroom), at Olean, N. Y., and one to animal parasitic disease (trichinosis), at Boston.

It is deemed important to point out briefly in Table 9 the different investigative procedures that are suggested in outbreaks, and the clinical symptoms in both types of food poisoning due to bacterial contamination and understerilization of preserved foods.

TABLE 9.—*Comparative Procedures*

General Food Poisoning	Botulism
Incubation Period	
Usually 3 to 8 hrs., rarely over 12	Usually 24 to 48 hours
Treatment	
Supportive and eliminative	Botulinus antitoxin, specific type; absolute quiet; eliminative
Investigative Procedure	
1. Use incubation period for basis of determining the causative meal	1. Use incubation period for basis of determining the causative meal
2. Always suspect freshly cooked or warmed over foods. Preserved foods are rarely at fault. Foods are apparently O.K. as to taste, appearance, odor and texture.	2. Always suspect preserved foods; likewise, meat products such as sausages. Spoilage of foods is noted in many instances
3. Bacteriologic examination of excreta of patients and the suspected food for the paratyphoid group and other organisms	3. Test of suspected food for toxin by animal inoculation; mice, guinea-pigs or rabbits. Test for type with specific antitoxin. Culture of suspected food for the presence of spores, particularly if food has been previously boiled
4. Bacteriologic and epidemiologic search for human carriers and possible contamination from animal sources	4. Search for domestic animals, such as chickens with symptoms of limberneck, for corroborative field and laboratory evidence
5. Complications: appendicitis, cholecystitis, persistent elevation of temperature (paratyphoid infection)	5. Complications: bronchopneumonia
	6. Human outbreaks are usually due to Type A toxin
Symptomatology	
Sudden onset; nausea, vomiting, abdominal pain, prostration, diarrhea and rise of temperature	Delayed onset; marked muscular weakness; gastro-intestinal symptoms, rare; disturbances of vision with diplopia and blepharoptosis; loss of ability to swallow and talk; constipation; rapid pulse and subnormal temperature; rarely any pain; death from respiratory failure
Mortality, 0 to 1 per cent.	Mortality over 60 per cent.
Case infectivity rate high	Case infectivity rate usually 100 per cent.

CONCLUSIONS

The data collected and studied in this paper indicate that the diagnosis of "ptomain poisoning" should be promptly discarded by the medical profession because it is too inconclusive a term.

A clinical diagnosis of food poisoning, especially when it is suspected that the food is contaminated with

9. Jordan, E. O.: Food Poisoning, University of Chicago Press, 1917.
10. Bernstein, H. S., and Fish, E. S.: Food Poisoning by Bacillus Paratyphosus B, J. A. M. A. 66: 167 (Jan. 15) 1916.
11. Krumwiede, C.; Provost, D. J., and Cooper, G. M.: J. M. Res. 43: 53 (Jan.-March) 1922.

certain bacteria or their toxins, should be supported by epidemiologic, bacteriologic and toxicologic investigation. Our experience in the past year has amply demonstrated the possibility of obtaining epidemiologic surveys in outbreaks, supplemented by laboratory evidence, despite the delay incidental to the necessary travel.

The question of the actual biologic cause or the mechanism for the production of the symptoms in outbreaks of food poisoning of the type under discussion in this paper, whether they can be considered as being due to a toxin or to a bacteria or both, is experimentally and epidemiologically yet unanswered. Nor is it finally settled that only the organisms of the paratyphoid group can produce the classical, clinical picture of food poisoning or intoxication of this type. However, it will be shown in another paper how difficult it is to obtain a filterable poison from cultures of the paratyphoid group even under special conditions. Furthermore, when such poisons are produced, the time of production, in the same culture medium and with identical cultures, is extremely variable. That such toxic filtrates, when obtained from the cultures of the paratyphoid group, are thermostabile seems not questionable, but it is doubtful whether they are resistant to heat for more than ten minutes at 212 F.

The short incubation period noted in the cases in the proved outbreaks of this series, the comparatively early and complete recovery of the majority of the persons ill, the low mortality rate and the absence of continued temperatures or other evidence of infection, even when food undoubtedly containing living pathogenic organisms of a type which ordinarily should produce in time such a temperature is ingested, make the problem most interesting for future study.

Epidemiologically, the isolation from the causative food or the excreta of persons ill in outbreaks of either *B. paratyphosus* A or B is most likely due to the contamination of the food by a human carrier intimately connected with the preparation of the meal or the particular food. It is possible, however, that such contamination may be due to the usual sources of pollution of water and milk supplies. The isolation of *B. enteritidis, B. pullorum,* some strains of *B. paratyphosus* B, and possibly other bacteria, indicate contamination from animal sources other than human, and is primarily a sanitary problem of abattoirs and meat shops.

Scandinavian Radiology Congress.—*Hospitalstidende* comments on Scandinavian progress in therapeutic radiology, as evidenced at the recent gathering at Stockholm. Runström's roentgenograms showed the possibility of detecting fracture of a metatarsal bone by the subperiosteal hemorrhage even when the fracture line cannot be seen. Panner's revealed that in many of the cases of so-called arthritis of the shoulder there was an unsuspected fracture of the neck of the humerus. Baastrup presented evidence that acute atrophy of bone resulting from inactivity is practically the same process as after fracture or other lesion. Berven of Stockholm has worked out a simple method for applying roentgen-ray treatment to chronically inflamed tonsils, and reported that he had been successful with it in numbers of patients. Microscopes and specimens were handed around to demonstrate the cure of the tonsillitis. Reyn's success with carbon arc light and roentgen rays in the treatment of tuberculous glands at the Finsen Institute, and Sonne's rapid cure of rats with rickets under quartz lamp exposures attracted attention, as also Krebs' studies of germinating seeds under roentgen rays, showing the great difference according to whether the rays were filtered or not, and the kind of filter. The fourth congress will be held at Helsingfors in 1925, with Wetterstrannd presiding.

A STUDY OF THE ACTION OF CALCIUM IN EXPERIMENTAL COCAIN POISONING*

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Some time ago, Dr. Emil Mayer, chairman of the Committee for the Study of Toxic Effects of Local Anesthetics, called my attention to a paper by Karl Mayer [1] and one by Hofvendahl,[2] with a request that a report on their results be prepared for the committee. Shortly after my report was submitted to Dr. Mayer, the chairman of the committee, a paper was published by Frank, Strauss and Smiley [3] in which they stated that they were unable to observe any antagonistic action of calcium toward cocain, such as Karl Mayer had reported. They offered no explanation of the discrepancy between their results and those of Mayer, and it seems desirable, therefore, to publish the result of my investigation and to explain the discrepancy mentioned.

Karl Mayer's work is fundamentally faulty, so far as one can judge from his paper, in that he did not determine the fatal dose of cocain for the animals that he used under the conditions of his experiments, but accepted statements contained in the literature on this point. He states that, according to the literature, the fatal subcutaneous dose of cocain hydrochlorid for the guinea-pig is beween 40 and 60 mg. per kilogram of weight, and that doses of 70 mg. per kilogram were survived by guinea-pigs that also received calcium chlorid. He deduces from this that calcium chlorid exerts a protective action against cocain. Mayer was led to employ calcium salts in this way by the observation of Meltzer and Auer [4] that calcium salts stimulate the respiration and antagonize the action of otherwise fatal doses of magnesium salts. Mayer also states that the heart of the frog severely poisoned by cocain can be restored to normal by the administration of calcium salts.

Reference to the accompanying table shows that doses of 70 and 80 mg. of cocain hydrochlorid per kilogram of weight are not fatal to guinea-pigs when they are injected subcutaneously, though one animal that received the larger dose died after twelve hours while exposed accidentally to severe cold, and that calcium salts exert no protective action against doses slightly larger than these.

In order to determine whether calcium salts have any antagonistic action toward cocain under conditions in which the effects vary less than they do when the poison is injected subcutaneously, cats were used, and the cocain and the calcium chlorid were injected intravenously.

Eggleston and Hatcher [5] found the average fatal intravenous dose of cocain hydrochlorid in 5 per cent. solution for the cat to be about 15 mg. per kilogram,

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* From the Department of Pharmacology of Cornell University Medical College.

* This investigation was conducted under the auspices of the Therapeutic Research Committee of the Council on Pharmacy and Chemistry of the American Medical Association.

1. Mayer, Karl: Zur Bekaempfung der Cocainvergiftung, Ztschr. f. Ohrenh. **82**: 42, 1922.
2. Hofvendahl: Die Bekaempfung der Cocainvergiftung im Tierversuch, Biochem. Ztschr. **117**: 55, 1921.
3. Frank, Ira; Strauss, J. F., and Smiley, W. A.: A Study of the Action of Calcium in Experimental Cocain Poisoning, J. A. M. A. **80**: 1908 (June 30) 1923.
4. Meltzer and Auer: The Antagonistic Action of Calcium upon the Inhibitory Effect of Magnesium, Am. J. Phys. **21**: 400, 1908.
5. Eggleston, Cary: and Hatcher, R. A.: A Further Contribution to the Pharmacology of the Local Anesthetics, J. Pharmacol. & Exper. Therap. **13**: 433 (Aug.) 1919.

this dose being survived in some experiments. I found that a dose of 20 mg. per kilogram caused death. Cocain hydrochlorid and calcium chlorid were then administered together to four cats in intravenous doses of 20 mg. of cocain hydrochlorid per kilogram, with varying amounts of calcium chlorid. All four cats died in the usual manner following such doses of cocain alone.

In order to determine whether calcium salts exert any antagonistic action to that of cocain on the heart, experiments were also performed on frogs, in which the beat of the heart is, in a measure, independent of respiration. Eight frogs received cocain hydrochlorid in doses varying from 0.15 to 0.70 mg. per gram of weight, injected into the anterior lymph sac. The results of these experiments show that doses of 0.15 mg. cause slight intoxication and interference with spontaneous movement to some degree, but they do not affect the reflexes, or the action of the heart perceptibly,

Effects of Cocain Hydrochlorid With and Without Calcium Chlorid in Frogs, Guinea-Pigs and Cats

Experiment	Doses, Mg. per Kilogram: Cocain	Calcium Chlorid	Results After One Hour
	FROGS (INJECTED INTO LYMPH SAC)		
1	150	000	Heart beats normally
2	170	000	Heart beats normally
3	200	000	Systolic tendency of the heart
4	250	000	Heart beats feebly
5	300	000	Heart in partial diastole
6	400	000	Heart in partial diastole
7	500	000	Heart in partial diastole
8	700	000	Heart in partial diastole
1	150	600	Heart beats feebly
2	170	680	Slight systolic tendency of heart
3	200	800	Heart beats slowly and feebly
4	250	1,000	Heart stopped in diastole
5	300	1,200	Heart beats slowly and feebly
6	500	2,000	Heart stopped in diastole
	GUINEA-PIGS (INJECTED SUBCUTANEOUSLY)		
1	70	000	Survived
2	80	000	Survived (died during exposure)
3	100	300	Died
4	100	400	Died
	CATS (INJECTED INTRAVENOUSLY)		
1	20	000	Died
2	20	150	Died
3	20	200	Died
4	20	250	Died
5	20	350	Died

at once. Doses of from 0.3 to 0.7 mg. cause total paralysis and a diastolic tendency of the heart with a slow rate. It seems probable that a delay in absorption prevents markedly greater effects from the larger doses, such as one would expect.

Cocain hydrochlorid was then administered in the same way (except that it was dissolved in a 4 per cent. solution of calcium chlorid) in doses of from 0.15 to 0.5 mg. per gram of weight. The results of the experiments show that calcium chlorid exerts no antagonistic action toward that of cocain on the frog's heart, but, on the contrary, the combination is more toxic than is an equal amount of cocain alone, presumably because of the more rapid absorption of the hypertonic solution.

From the results of these experiments, as well as those of Karl Mayer himself, it would appear that there is no evidence that calcium salts exert any antagonistic action to that of cocain.

Mayer also stated that when one eighth or one fourth of the fatal dose of cocain was injected into a frog, with a "small" dose of morphin, which would have otherwise been harmless, the animal died. On these observations he bases a warning against the use of morphin in cocain poisoning. While I have no desire to discuss the use of morphin in cocain poisoning, I do wish to point out that the dose of morphin which Karl Mayer[6] termed "small" is actually toxic for the frog, and relatively to its size it is thousands of times larger than the therapeutic dose for man. The dose of morphin which Mayer used was 0.15 gm. (2½ grains) for a frog. There is no reason to suppose that the results which he obtained with morphin and cocain on frogs has any bearing whatsoever on the therapeutic use of morphin and cocain.

OBESITY AND HYPERTENSION

A. H. TERRY, JR., M.D.
NEW YORK

In September, 1919, one room for women patients at the Presbyterian Hospital Dispensary was devoted to the care and study of cases diagnosed as obesity. While the result of treatment was not startling, the incidence of hypertension and the influence of diet are here noted.

The method employed was a reducing diet calculated to contain sufficient protein and yet to be nonsustaining in calories for the average working woman to maintain her body weight. This relatively high protein diet contained a total of about 1,700 calories, with about 87 gm. of protein. Whenever fewer calories were found necessary to bring about reduction, first the butter (200 calories), then the bread (300 calories), and then the starchy vegetable was removed. Such a diet was found to be far from ideal and not very exact, but nevertheless workable for the patient as well as for the physician.

REDUCING DIET

Breakfast:
- One orange or apple.
- One teaspoonful sugar (rounded).
- Coffee with 4 tablespoonfuls of milk.
- Two eggs, or a piece of lean meat 5 by 3 by ½ inch.

Lunch:
- One cup of beef tea or clear soup.
- Tea with 2 tablespoonfuls of milk.
- One level teaspoonful of sugar.
- Two slices of bread, 4 by 4 by ½ inch.
- Spinach, celery or other green vegetable (1 saucerful).
- Lean meat 5 by 3 by ½ inch.

Dinner:
- One cup of beef tea or clear soup.
- Tea with 2 tablespoonfuls of milk.
- One level teaspoonful of sugar.
- One slice of bread.
- Butter, one-half pat, ½ by ½ by ¼ inch.
- Meat, 5 by 3 by ½ inch.
- One potato or two tablespoonfuls of any starchy vegetable without grease.

There were sixty-three cases observed, but not all the patients returned for further examination; so figures are given for the patients who came only once and also for those who were reexamined. Some of the patients were intelligent, but many were rated at from 40 to 60 per cent. The rate of intelligence usually determined the strictness with which the diet was followed. The average period of observation was one year.

GROUP FINDINGS

From pages of tabulation it was noted that the average age was 45, height 63 inches, and bust 46 inches.

6. Mayer, Karl: Zur Therapie der Cocainvergiftung, Schweiz. med. Wchnschr. **52**: 767, 1922.

The last measurement was found to be somewhat elastic and unreliable.

The first item of interest was the matter of weight, which was found to average 199½ pounds (90.6 kg.) for all cases on admission. Of the fifty-six patients who were reweighed, the average was 202 pounds (91 kg.) on admission and 190 pounds (86.2 kg.) when last seen—a loss of 12 pounds (5.4 kg.). This seems only a fair loss, but of course many would only partially diet; so, while the faithful did not suffer from the abundance of the unfaithful, the average loss was not striking.

The total weight of all fifty-six patients returning was, on admission, 11,307 pounds; after dieting, 10,640 pounds, making a grand loss of 667 pounds, or one-third ton, and a possible saving of more than that in food.

Although patients were not referred to the obesity clinic because of their blood pressure, it was found that thirty-seven of the sixty-three patients, or 58 per cent., had hypertension. The familiar diagnosis in the majority of cases became obesity and hypertension. The average systolic blood pressure in all cases first seen was 173; diastolic, 96. The average in the twenty-four cases that were followed with later readings was: systolic, 196 diastolic, 103. After more or less reducing, their average was: systolic, 170; diastolic, 95. The systolic blood pressure seemed the labile factor, while the denominator remained relatively fixed.

Albumin was present in fourteen cases, absent in twenty-nine and not noted in twenty. When present, it never was more than a trace or a faint trace.

The average blood urea in the fifteen patients suspected of being nephritic was only 34 mg. per hundred cubic centimeters, and the highest only 56.

Glycosuria was found in only one case, and this cleared promptly on the reducing diet.

The Wassermann reaction was positive in one patient, negative in thirty-seven, and twenty-five were not tested.

INDIVIDUAL FINDINGS

The greatest individual loss in blood pressure was 275 systolic, and 150 diastolic, falling to 205 systolic, and 125 diastolic, in three months, the patient losing 13 pounds (5.9 kg.) in weight and feeling relieved of the dyspnea because of which she came to the clinic.

The greatest individual loss in weight was 60 pounds (27.2 kg.) in fourteen months, the blood pressure falling from 190 systolic, and 90 diastolic, to systolic, 148, and diastolic, 95.

The tendency of moderate increase in tension to become immoderate was seen in one case which had been observed three years previously, and in which the blood pressure was noted at 165 systolic, and 115 diastolic. When first seen in the obesity clinic, it had risen to 205 systolic, and 120 diastolic; the weight was 182 pounds (82.6 kg.). After diet, when 7 pounds (3.2 kg.) was lost, the blood pressure became 175 systolic, and 125 diastolic.

One patient with aneurysm of the innominate artery had an initial weight of 195 pounds (88.5 kg.), with a blood pressure of 250 systolic, and 95 diastolic. On diet, her weight fell to 175 pounds (79.4 kg.), and the blood pressure to 195 systolic, and 100 diastolic. Five months later, she gained four pounds (1.8 kg.), and the blood pressure became 215 systolic, and 80 diastolic.

The familial tendency to fat was noted in a patient, aged 18, who weighed 166½ pounds (75.5 kg.), and had blood pressure of 170 systolic, and 120 diastolic. On losing three pounds (1.4 kg.), the blood pressure fell to 135 systolic, and 85 diastolic. Her mother, in the same clinic, weighed 286 pounds (130 kg.), but had a blood pressure of only 150 systolic, and 85 diastolic.

There was only one patient found to have lowered metabolism, but only a few suspected cases were tested. In this case, thyroid was given with benefit, but in no other was it employed.

Another patient had gained 100 pounds (45.4 kg.) in the past five years, yet she lost 15 pounds (6.8 kg.) on diet in the year observed.

CONCLUSIONS

The majority of fat women who seek medical attention have hypertension. This hypertension is usually without findings suggestive of nephritis, diabetes or syphilis.

On a high protein, low calory diet there is a lowering of weight together with a lowering of blood pressure, and this frequently relieves the chief complaint.

131 East Sixtieth Street.

Clinical Notes, Suggestions, and New Instruments

SPONTANEOUS CURE OF A CASE OF EPIDEMIC (LETHARGIC) ENCEPHALITIS FOLLOWING AN ATTACK OF PNEUMONIA

JOSHUA H. LEINER, M.D., NEW YORK

E. S., a boy, aged 8 years, who had had an attack of encephalitis in September, 1919, a month later manifested symptoms of reversal of sleep, change in character, and other disturbances. He was then taken to the mountains to recuperate, where he spent a year without any benefit; in fact, he became worse.

Jan. 12, 1922, one and a half years later, he exhibited, as sequelae of his encephalitis, paroxysmal attacks involving the respiratory mechanism, and complete change in behavior. These respiratory attacks began one year after the acute attack of encephalitis. In the main, they resembled those in cases described by Parker,[1] and, in part, those by Haas, Sicard, Aronson and others.

The patient was admitted to Lebanon Hospital one week later. The attacks were characterized by rapid and deep respiration five or six times, and then holding of the breath, as if the child had a spasm in his throat. His face then became congested, followed by cyanosis; the eyes bulged and there was a sardonic facial expression. At the same time, he would push out the abdomen. Often during the height of the attack, he would suddenly drop to the floor. He would then get up, take a deep full breath and go about his play. In place of such an attack he would sometimes suddenly begin to rush around the room, the body tilted to the left, stop abruptly and stare around the room. These attacks lasted about one minute. Their frequency varied from five to fifteen minutes. While under observation in the wards, he kept the staff, nurses and children under constant tension. No one knew what he would do next. He vaulted into the beds of the other children, tweaked their noses, pulled their ears and took possession of and destroyed other children's toys or crackers.

Neurologically, he showed pupillary inequality, the right greater than the left, slight ataxia, and adiadokokinesis of the left upper extremity. Otherwise, his somatic nervous system was normal. Mentally he measured up to his chronologic age.

1. Parker, H. L.: Disturbance of the Respiratory Rhythm in Children: A Sequela of Epidemic Encephalitis, Arch. Neurol. & Psychiat. 8: 630 (Dec.) 1922.

Three weeks after his discharge from the hospital, I was asked to see him by his family physician, Dr. Kahrs. He showed high fever, the neck was rigid, and a bilateral Kernig sign was present. Tapping was followed by marked relief. He then developed a frank lobar pneumonia. A few scattered respiratory attacks occurred during his convalescence, and then they ceased entirely.

March 25, when I saw him again, he no longer had any attacks, and he has had none for nearly the past year and a half. His conduct is excellent. He walked into my office, and deported himself in a well behaved manner. To those who knew this lad during his illness, the present striking contrast is most dramatic.

COMMENT

This case of epidemic encephalitis is not reported solely because of its unusual termination, although I believe this alone would make it worthy of record, but because it sets us to reasoning along the lines of pathology and therapeutics in this disease.

The question arises as to how much of the clinical symptoms were due to a fixed pathologic condition, and how much was due to the rôle of edema and consequent physiologic block. The child began to show improvement a year and a half after his acute illness. In attempting to explain his recovery, the rôle of edema as a factor must unquestionably be taken into consideration.

It is a matter of record that cases of multiple sclerosis showing clinically apparently advanced pathologic changes of the central nervous system have shown at necropsy very little to account for the nervous symptoms displayed during life. Then, again, the remissions in this disease, as well as in general paralysis, are probably due to the phenomena described above.

Again, this lad recovered following an acute infectious disease. Cases of recovery from a long standing illness following an acute illness are a matter of record. Wagner-Jauregg used this principle in treating general paralysis with malarial virus.

The slow, insidious and progressive nature of epidemic encephalitis, a type which is the most prevalent, stamps it manifestly as a subacute degenerative disease. If, therefore, we can induce a frank reaction in the organism, arousing the defense mechanisms of the body, we can reenact the processes that took place in this patient.

I have used since, as a therapeutic measure, a nonspecific protein in the form of sodium nucleinate in more than twenty-four cases with gratifying results.

355 East One Hundred and Forty-Ninth Street.

A SIMPLE METHOD FOR MEASURING THE QUANTITY OF ALBUMIN IN THE CEREBROSPINAL FLUID BY THE SICARD-CANTELOUBE RACHIDIAN ALBUMINOMETER *

JOSEPH C. REGAN, M.D., NEW YORK

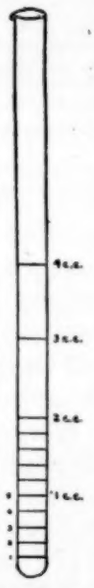
The determination of the quantity of albumin in the cerebrospinal fluid may often afford information of distinct value in separating normal from pathologic fluids.

Several methods have been proposed for the purpose. Bybee and Lorenz have employed the Brandenburger method for urinalysis, while Mestrezat has made use of a colorimetric method. Nissl has utilized the precipitation of the albumin by Esbach's reagent, measuring the precipitate by centrifugating. An opalescent reaction has been described, in which to a known quantity of cerebrospinal fluid nitric acid is added drop by drop. This mixture is carefully shaken until opalescence remains constant. The degree of opalescence is then compared to a standard previously graded, and indicating that a certain degree of opalescence corresponds to a definite amount of albumin per liter.

None of these methods are as simple, we believe, as that proposed by Sicard and Canteloube,[1] and it is with the purpose of presenting their excellent method that this paper is written. Little attention seems to have been drawn to the simplicity and practical value of the ingenious quantitative determination which they have ingeniously devised, and it seems not to have come at all into use in this country.

DESCRIPTION OF SICARD AND CANTELOUBE'S METHOD

A long glass tube of thick caliber, measuring 19 cm. in length and 7 mm. in interior diameter, is employed. It is graduated in its lower two thirds into four equal parts, each being 1 c.c. The last two of these divisions are graduated into five equal subdivisions. Exactly 4 c.c. of spinal fluid is poured into the tube, filling it as far as the 4 c.c. mark. The tube is then heated over the flame of an alcohol lamp to from 60 to 80 C. As soon as it is removed from the flame, 12 drops of 33⅓ per cent. trichloracetic acid is added. The tube is placed in the upright position and allowed to remain quiet for five minutes. A cork is inserted into the tube at the end of this time, and it is inverted two or three times. It is now allowed to remain quiet in a strictly vertical position for from five to twenty-four hours, at the end of which time the reaction is complete.



Sicard and Canteloube rachidian albuminometer.

The quantity of albumin is read as follows: A precipitate reaching to the first subdivision of the lower 1 c.c. equals 0.22 gm. per liter; to the second, 0.40 gm.; to the third, 0.56 gm.; to the fourth, 0.71 gm., and to the fifth, 0.85 gm. per liter.

When the trichloracetic acid is added to the heated fluid, a flocculent precipitate usually forms, and is the more intense, the greater the amount of albumin present. Usually within one hour there has been a sufficient sedimentation to make a rough estimation of what the ultimate reading will be.

The amount of albumin in the spinal fluid normally does not exceed 0.30 gm. per liter.

At the Kingston Avenue Hospital, we have been employing the method of Sicard and Canteloube, and have had special tubes made with the necessary markings on them, as in the accompanying illustrations. The method has been simple and easily carried out, and the results are of definite value as an additional check on the cytologic and rough qualitative globulin and albumin reactions in the differentiation of normal and pathologic fluids.

* From the Kingston Avenue Hospital, Department of Health, New York City; Dr. Frank J. Monaghan, commissioner of health.

1. Sicard and Canteloube: Rachialbuminimetrie, Presse méd. **242**: 388 (Aug. 31) 1916.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, SECRETARY.

ETHYL SALICYLATE (See New and Nonofficial Remedies, 1923, p. 272).

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Congenital Propensities to Crime.—The problem of the born criminal, however, is not answered and ended by a survey merely of hereditary conditions. What is inherited is necessarily inborn; but what is inborn has not necessarily been inherited. It is quite conceivable that a child may be afflicted with congenital propensities, without those propensities having first emerged in the previous history of his family.—Cyril Burt: *Brit. J. Med. Psychol.* **3**:16, 1923.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, OCTOBER 13, 1923

INDEXES OF NUTRITION

An intelligent reader of the popular magazines of the day, or an observer of the trend of current activities in the field of social welfare, cannot fail to note the lively interest that is being devoted to the problems of nutrition in childhood. The enthusiasm for the subject should be counted as fortunate. The World War, in particular, directed attention most forcibly to the importance of physical fitness for our national life. A recent writer [1] has described, as the "dramatic sequence of events" attending army recruiting, the rejection of great numbers of young men because of physical defects, the raising to maximum physical well-being of the men in training through the carefully regulated routine of the camp, and now the third stage of the object lesson, the waning of that standard of well-being among the men mustered out as they go back to the daily occupations and ill-regulated regimen of American private life. The same writer has stressed the inadequacy of such limited lines of attack as military training and athletic programs, on the one hand, and the traditional activities of medical and welfare agencies, on the other.

If, as many believe, the problem of malnutrition among school children plays an important part in this general health problem, and if improper nourishment is largely responsible for ills and weaknesses in later life, the interest that the existing conditions among the children of the nation has awakened is well justified. Malnutrition is no longer considered to be exclusively an outcome of poverty or bad environment. It may be found among the well-to-do as well as the poor. There are convincing indications that the fundamental causes of malnutrition are more often concerned with the status of the individual than with group conditions, social strata, or racial factors. This means, therefore, that the efforts for improvement must often be concentrated on individuals rather than on classes. Norms or standards of what is an adequate physical condition of children at different ages must be established so that deviations can be recognized and deficiencies remedied as far as possible. The essentials of health and proper development should then be attainable in the home of almost every family.

Proposals for such standards have, indeed, not been lacking. Striking deviations are always easily recognized; but the borderline cases are not so readily designated. The varied indexes of nutrition heretofore proposed have been quite unlike. Some have taken age as the basis on which to compute normal weight; some have attempted to establish norms of height for age; others have dealt with weight for height; still others with the relation of trunk length—the sitting height—to body weight. The enthusiasts who have supported one or another of these "systems" of evaluating physical fitness as evidenced by growth have been quick to apply them with mathematical rigor to the individual child. Whenever the latter gave measurements that fell below the particular average adopted by the examiner, the adolescent was promptly consigned to the category of "unfit" or "below par." One group of investigators among school children has frankly admitted, in a recent report [1] on standards of growth, that the ability to evaluate results from their successive programs of experiment has been rendered problematic by the existing limitations of knowledge as to standards and laws of growth, and that a considerable amount of research must be completed in this field before the evaluation of returns from the health program can be placed on a scientific basis. Seasonal variations and possible climatic factors affecting them may demand recognition. The effect of racial stocks may require more detailed consideration.

The timeliness of more adequate investigations and search for practical, dependable indexes of physical fitness is indicated in a recent report from the U. S. Public Health Service.[2] The members engaged in the study have put some of the "standards" to a direct test in a group consisting of more than 500 children who, on medical examination, have been found free from defect and in satisfactory physical condition. Three standards of weight were applied to them. It was found that, according to the Wood standard (height-weight-age tables), 20 per cent. of these children were more than 10 per cent. underweight; according to Dreyer's standard (stem length and chest circumference tables), 13 per cent. of the children were more than 10 per cent. underweight; and according to Pirquet's pelidisi method, 17 per cent. had pelidisis of 94 or less and were underweight according to this standard. Out of 506 children, about 200 were classed as underweight by one or more of the three standards used; of these, all three standards agreed on fifteen cases as being underweight.

Shall we conclude that so many children selected as the best specimens of health that could be found in representative school districts are in truth underweight?

1. Hunt, Jean Lee; Johnson, B. J., and Lincoln, Edith M.: Health Education and the Nutrition Class, New York, E. P. Dutton & Co., 1921.

2. Clark, Taliaferro; Sydenstricker, Edgar, and Collins, S. D.: Indices of Nutrition, Pub. Health Rep. 38: 1239 (June 8) 1923.

Such a decision, involving one fifth of the school population there, seems somewhat appalling. It is probably fairer to infer that, instead of applying such standards too rigorously, we should await more information, as one report insists, to place both corrective work for malnutrition and general procedures in health education on a more secure scientific basis. However, a mediocre average—the mere attainment of a uniform "standard" of excellence—should not be the goal of American public health effort. As the same report points out, the susceptibility of the average family and racial standards to improvement is a fact that has yet to become a part of national and individual thinking. Even a few years, however, may bring radical changes in our conceptions as to the possibilities of such improvement.

MECHANISM OF THE VESICANT ACTION OF MUSTARD GAS

Extraordinarily efficient and impressive as a weapon in war, mustard gas, or dichlorethylsulphid, remains an object of scientific study in peace. Mustard gas and other more recent compounds may become important weapons in some future conflict; hence the importance of keeping informed of recent developments along this line.

Pharmacologically, the chief item of interest in mustard gas is the nature of its vesicant action. Without a knowledge of this, an adequate protection against burns produced by it, and rational treatment of these burns, become mere empiricism. The unsettled state of our knowledge regarding the mechanism of the vesicant action was pointed out in these columns some time ago.[1] Certain American investigators (Marshall and others [2]) had contended that the fundamental mechanism is in the nature of an intracellular acidosis due to the liberation of hydrochloric acid in virtue of the lipoid solubility of the compound, and ready decomposition in water. This explanation was unacceptable to German war gas investigators,[3] who regarded the blistering action as due to the entire mustard gas molecule, in which the active sulphur might be a factor. In this they appear to be sustained by the recent work of Peters and Walker [4] of the Biochemical Department of Cambridge University.

The English investigators tested the acid theory by noting the vesicant properties of chemically analogous and lipoid-soluble substances that split off acid either at the same rate as mustard gas or faster, and of analogous substances that split off acid much more slowly than mustard gas, and should be either nonvesicant or much less vesicant. Of a series of six compounds that were used in the tests, only two were found to be vesicants, and these represented the extremes of the rate of acid production. The two blistering compounds were mustard gas (dichlorethylsulphid), whose rate of acid liberation was 100, and dichlorodiethyl sulphone, whose rate was 1, or one-one hundredth that of mustard gas. The remaining four compounds were nonvesicant; but the rate of acid liberation of one (dichlorodimethyl sulphid) was 500, of another (tetrachlorodiethyl sulphid), 4, and of still another (hexachlorodiethyl sulphid), 1. The trichlorodiethyl sulphid did not liberate acid and was nonvesicant. The results of Peters and Walker indicate the danger of too free generalization from inadequate data. If acid liberation caused vesication, the dichlorodimethyl sulphid, which liberated acid at the highest rate, should be a very powerful blisterer; but this was not the case. A 1 per cent. concentration of sodium chlorid, which exists in living cells, was found to slow markedly the acid liberation from the dichlorodiethyl sulphone. Hence, in the cell the sulphone would not split off acid at all, and yet this compound was definitely vesicant. From these evidences, which show that vesicant action and rate of acid liberation do not run parallel, Peters and Walker were forced to conclude that the theory of intracellular acidosis is untenable and must be dismissed.

In lieu of the acid theory, the English investigators suggest that the chlorin-containing compound itself in the nonhydrolyzed condition is responsible for the vesicant action. From the facts that both mustard gas and mustard oil contain sulphur and act as vesicants, they suggest that it is the unhydrolyzed molecule that is the vesicant agent, and that the presence of a reactive sulphur atom has an important bearing on the vesicant power of these substances.

It is obvious that the matter of solving the mechanism of vesicant action by mustard gas and related compounds is one of considerable difficulty. The burden increases as we reflect on the inadequacy of our knowledge of the physiology and pathology of the skin and accessory structures. For instance, the existence of a causal relation between the inhibition of vasodilator axon reflexes (by cocain and nerve degeneration) and the inflammatory action of mustard oil on conjunctiva and skin, demonstrated by Spiess [5] and Bruce,[6] had been accepted for some time as definitely established; but, according to the recent studies of Hirschfelder,[7] this alleged relation appears to have been based on a misinterpretation. At any rate, attempts at correlation of chemical constitution and vesicant action are premature, especially when the diversity of vesicant and skin-burning substances, unrelated chemically, is borne in mind.

1. Unsettled Status of Intracellular Acidosis in Mustard Gas Poisoning, editorial, J. A. M. A. **78**: 1129 (April 15) 1922.
2. Marshall, E. K., Jr.: Mustard Gas, J. A. M. A. **73**: 684 (Aug. 30) 1919. Marshall, E. K., and Williams: Toxicity of Skin Irritant Effect of Certain Derivatives of Dichloroethylsulphide, J. Pharmacol. & Exper. Therap. **16**: 259 (Nov.) 1920. Lynch, V.; Smith, H. W., and Marshall, E. K.: Mustard Gas, II, Variations in Susceptibility of Skin to Dichloroethyl Sulphide, J. Pharmacol. & Exper. Therap. **12**: 291, 1918.
3. Magnus et al: Ztschr. f. d. ges. exper. Med. **13**: 579, 1921.
4. Peters, R. A., and Walker, E.: Rate of Liberation of Acid by BB'Dichlorodiethyl Sulphide and Its Analogues in Its Relation to the "Acid" Theory of Skin Vesication, Biochem. J. **17**: 260, 1923.
5. Spiess, G.: Die Bedeutung der Anesthesia in der Entzündungstherapie, München. med. Wchnschr. **53**: 345, 1906.
6. Bruce, A. N.: Ueber die Beziehung der sensiblen Nervenendigungen zum Entzündungsvorgang, Arch. f. exper. Path. u. Pharmakol. **63**: 424, 1910.
7. Hirschfelder, A. D.: The Effect of Local Anesthetics upon the Conjunctivitis Caused by Mustard Oil, Proc. Soc. Exper. Biol. & Med. **20**: 508, 1923.

SOME BIOCHEMICAL PROBLEMS RAISED BY THE DISCOVERY OF INSULIN

The most immediately observable change following the administration of insulin is a reduction in the glucose concentration of the blood. Hypoglycemia ensues unless the dosage is most carefully regulated. The undue reduction of the sugar content of the blood is itself a symptom of menacing character which, in turn, can be combated by the administration of readily assimilable carbohydrate. It requires little insight into the scientific problems involved to appreciate that the cause of the disappearance of blood sugar after insulin administration urgently demands an explanation. The biochemists and physiologists have been quick to perceive this, and many laboratories are already attempting to solve the questions presented.

Several possibilities at once suggest themselves. The hypoglycemia following insulin administration might be due to increased destruction of the sugar in the blood stream itself. If this were the case it would harmonize with the observations, recently discussed in THE JOURNAL,[1] indicating that glycolysis is much more active in normal blood than in that of persons suffering from fairly severe diabetes. The experiments of Eadie, Macleod and Noble[2] at Toronto force us, however, to seek a different explanation. The addition of insulin to the defibrinated blood of the rabbit and dog does not affect the rate of glycolysis in vitro. This was true not only of normal blood, but also of blood removed from these animals after the injection of insulin, both when the blood was removed within a few minutes after the insulin had been injected and when it was removed after the hypoglycemia had become pronounced. Furthermore, the Toronto physiologists were unable to demonstrate that insulin affects the rate of glycolysis in mixtures of blood or saline solution, and chopped muscle or muscle juice, or even suspensions of leukocytes. They conclude, therefore, that when insulin is injected into an animal it must pass from the blood through the capillaries into the tissue cells and cause in them a rapid disappearance of glucose—a vacuum for this substance, as it were—with the result that glucose also is removed from the blood at a rate that is greater than can be made good by a new production of glucose from the glycogen reserves.

Glycolysis involves the destruction of sugar. It is conceivable, however, that the latter disappears from the circulation not through a process of destruction but by storage through conversion to a more complex compound no longer giving the reactions of glucose. The sugar would then not be burned and leave the body as carbon dioxid and water, but might be deposited as glycogen in one or more of the storage organs for this substance. The recent experiments by Dudley and Marrian[3] at the National Institute for Medical Research in England negative this explanation also. Not only is sugar not stored in this manner, but the livers of normal animals that have received sufficient insulin to bring them to the verge of hypoglycemic convulsions contain very little glycogen. It appears, in fact, that as soon as the blood sugar falls to a certain level, the liver mobilizes its glycogen and pours glucose into the blood stream, in an effort to maintain an adequate concentration of sugar there. The glycogen of the skeletal muscle behaves similarly. There is no evidence of a conversion of carbohydrate into fat in normal animals under the influence of insulin. How, then, do the tissue cells cause glucose to disappear under the influence of insulin?

1. Glycolysis in Diabetes, editorial, J. A. M. A. **81**: 835 (Sept. 8) 1923.
2. Eadie, G. S.; Macleod, J. J. R., and Noble, E. C.: Insulin and Glycolysis, Am. J. Physiol. **65**: 462 (Aug.) 1923.
3. Dudley, H. W., and Marrian, G. F.: The Effect of Insulin on the Glycogen in the Tissues of Normal Animals, Biochem. J. **17**: 435, 1923.

Current Comment

OIL POLLUTION OF WATERS AND PUBLIC HEALTH

Pollution by oil on the coast waters, with consequent injury to riparian property, can be virtually prevented, according to the preliminary report of a special committee that has been working on the problem for the Bureau of Mines. The remedies suggested by the committee include the installation of devices on ships to prevent egress of oil waste, the provision of barges or other receptacles in harbors to take on necessary refuse, and the control of waste from stream-side industrial plants. The study of the origin of oil in coastal waters showed the principal sources to be: (1) oil swept in from outside the three-mile limit; (2) oil-contaminated waters and oily material from oil-burning ships; oil refuse from ship repair yards; (3) oil waste and oil-water mixtures from refineries and oil fields; (4) tarry matter or heavy oil from gas plants; (5) oil waste from sewers, and (6) oil pollution from streams adjacent to and connected with coast and harbor waters. The report shows a definite relationship between oil pollution and public health. The menace to health of oil thrown into the water includes: "(1) the discouragement of healthful recreation, such as bathing, boating, fishing and hunting; (2) its effect in rendering clams, oysters and other sea food unfit to eat on account of the oil actually absorbed by this food; (3) the unsightly appearance which may result from the presence of oily refuse in any locality, accompanied by the tendency to lower hygienic standards of the community; (4) the possible preventing or retarding of the normal oxidation of sewage; (5) skin diseases or irritations which are believed to be the result of contact with oil and oily residues; (6) the odors that may be given off directly by oil and oily matter when deposited on the shores and banks of streams; obnoxious odors from accumulated fecal matter resulting from retarded oxidation of sewage." The report, which is signed by F. W. Lane of the Bureau of Mines (chairman); A. D.

Bauer, oil expert of the bureau; H. F. Fisher, representing the American Petroleum Institute, and P. N. Harding, of the American Steamship Owners' Association, is a thoroughly worked out, authoritative document. No doubt it will stimulate action in various communities toward remedying the unhealthful conditions to which it calls attention.

THE SUPRARENAL CORTEX AND EPINEPHRIN

The suprarenal structures are essentially double organs. The medullary portions are of sympathetic nervous origin and are frequently defined as "chromaffin" tissue because they give histologic reactions with chromic acid in common with a variety of other structures, such as the sympathetic ganglions. It is from the medulla of the suprarenal that epinephrin has been isolated, so that attention has been centered largely on this part of the gland. The cortex is quite different in character; its functions have remained obscure, although some physiologists have asserted that it is essential for life. It has been argued that only animals with accessory suprarenals that contain cortical substance withstand ablation of the suprarenals proper, presumably because the rest of the chromaffin tissue in the body remains to compensate. Recently, however, there have been indications that the suprarenal cortex may produce epinephrin.[1] Hartman of Buffalo, in particular, has observed that any condition that calls forth a marked increase in the epinephrin output for a considerable period of time seems to affect the cortex. This might be due to an excessive activity of the cortex in producing epinephrin. The latter does not accumulate in the cortex; nevertheless it may be manufactured there and then transferred to the medulla, which is notably rich in the hormone. The crucial test—the chemical isolation of epinephrin from suprarenals deprived of their medullary tissue—has not yet been made. Meanwhile, the suprarenal cortex has assumed new possibilities of physiologic moment.

THE AFTERMATH OF ABRAMS' VISIT TO MEXICO

Albert Abrams' visit to Mexico, at the invitation of a Mexican politician and a potential candidate for the presidency, was recently referred to in these pages. While Abrams was in Mexico one of the best known physicians of that country, Dr. A. Brioso Vasconcelos, editor of the *Gaceta Médica de México* and a well-known sanitarian, challenged Abrams' claims. We now learn, according to the official organ of the Mexican Medical Association, that Dr. Vasconcelos' resignation as a member of the Superior Board of Health has been called for. Our Mexican contemporary says that while Dr. Vasconcelos does not suffer any personal loss on this account, as he is a successful practitioner, the national health department suffers a serious loss through the ousting of one of its most active and competent workers. The journal also emphasizes the viciousness of playing politics with the people's health, for Dr. Vasconcelos' enforced resignation is generally attributed to his criticism of Abrams. The Board of Officers of the Mexican Medical Association sent a protest to the authorities expressing disapproval of their confrère's dismissal. The medical profession of our sister republic is, moreover, strongly behind Dr. Vasconcelos and approves the attitude he took. The official organ of the profession of Mexico, in commenting on the matter says:

> When in all civilized countries sanitary authorities are engaged in fighting quackery, must it be said of Mexico that a competent physician was dismissed from his position because of his having dared to challenge a quack? We can hardly believe such a measure was approved by those who should control the Department's policies.

BIRDS OF A FEATHER—AND A MAN IS KNOWN BY THE COMPANY HE KEEPS

The city of Chicago has been singularly blessed during the last few months by the annual conventions of all the variegated assortment of peculiar practitioners. There have been conventions of naturopathy, of medico-physical research and of physical therapeusis, and the allied practitioners and what not are in the offing. Strangely, when one comes to consult the programs of these organizations one discovers, freely intermingled with those practitioners who diagnose and treat disease by colored lights, spinal adjustments, so-called autohemic therapy and the "electronic reactions" of Abrams, as well as by soul science, medico-radio-vibrations and zonotherapy, the names of a few physicians whose names heretofore have been associated only with decent medicine. When a program is predominantly devoted to the delusions of the enthusiast and the vagaries of the quack, physicians with reputations to lose might consider well whether or not they care to associate with such a group.

THE EYE AND THE AUTOMOBILE

THE JOURNAL has commented several times on the necessity of good eyesight for the drivers of motor vehicles, for there is no doubt that many accidents are definitely related to weakness or abnormality of vision. Another side of the relationship of the eye to the driving of motor vehicles is brought forth in a bulletin just issued by the National Committee for the Prevention of Blindness. This committee reports that, next to industrial accidents, motor vehicle accidents caused the greatest number of eye injuries during September, agricultural accidents ranking third and the accidental explosion of guns fourth. From August 1 until October 1, 590 serious eye accidents had been reported to the National Committee in the course of an investigation as to the number and causes of all accidents affecting the eye. In forty cases there was a total loss of both eyes and in 167 cases complete loss of one eye. Industrial accidents caused 198 injuries, automobile accidents, sixty-three, and agricultural accidents, forty-six. The relation of eye accidents to sport is indicated by the fact that during these two months eleven serious

1. Hartman, F. A., and Hartman, W. E.: The Production of Epinephrin by the Adrenal Cortex, Am. J. Physiol. **65**: 623 (Aug.) 1923. Cramer: J. Physiol. **52**: 8, 13, 1918.

injuries to the eye were caused by baseballs, six by golf-balls, five by bursting automobile tires and one by football. Wood alcohol, which has received great publicity as a cause of damage to the eye, caused six cases of blindness. It is, of course, understood that these statistics are not complete. They represent cases voluntarily reported to the National Committee by cooperating institutions and physicians. No doubt, a complete census of such accidents would confirm the relative importance of the various causes mentioned.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Mild Case of Plague.—The case of bubonic plague reported in THE JOURNAL, October 6, p. 1212, originated in Monterey County. The attack was mild, Dr. W. H. Kellogg of the state board of health announces, and the patient, an American, has fully recovered.

DISTRICT OF COLUMBIA

Donation to Medical Museum.—Dr. James Moores Ball, Jr., St. Louis, has presented his collection of ophthalmic specimens to the Army Medical Museum, Washington. The collection includes a large number of original drawings of external ocular diseases, photographs, pathologic preparations of eye diseases, microscopic sections, eye instruments, rare ophthalmic literature, copies of well known ophthalmic atlases and many portraits of past leaders in ophthalmology.

GEORGIA

Illegal Practitioner Fined.—According to reports, Frank M. Welch, Atlanta, recently sentenced in federal court to one year and a day in the federal penitentiary for sending non-mailable matter through the mails, was found guilty, September 27, of practicing medicine without a license. He was sentenced to pay a fine of $500 and to serve twelve months with the chain gang. Judge Humphries announced that if Welch paid the fine, the chain-gang sentence would be suspended.

ILLINOIS

Automobile Rivals Diphtheria.—As a cause of death in Illinois, the automobile now rivals diphtheria and greatly outranks a long list of other common diseases, according to the state health department. Of the communicable diseases, only pneumonia, tuberculosis and infantile diarrhea accounted for greater mortality than automobile accidents.

Personal.—Dr. Gertrude E. Moulton, Urbana, for the past four years physical adviser to women at the University of Illinois, has been appointed head of the department of physical education at Oberlin College. Dr. Maude L. Etheredge, head of the women's division of student health service, Cornell University, has been appointed to succeed Dr. Moulton at the University of Illinois.——Dr. William E. Rice, Tuscola, has gone to Raton, N. M., where he will have charge of the new tuberculosis sanatorium.

Chicago

Illegal Practitioners Fined.—James E. Brown and Mrs. Eva Dallas, according to reports, were each fined $100 and costs, October 5, when they pleaded guilty to practicing medicine without a license. The couple operated a "cancer cure" and, it was said, had charged patients from $55 to $300 for "treatment."

Founders' Day at Northwestern.—Northwestern University Medical School celebrated Founders' Day, October 2. Dr. Emilius C. Clark, emeritus professor of gynecology, Northwestern University Medical School, recently of Peking Union Medical College, gave an address on "My Impressions of China, Medical and Otherwise." The exercises marked the sixty-fourth anniversary of the institution. Dean Kendall spoke on the significance of Founders' Day.

Society News.—A meeting of the Chicago Pathological Society was held, October 8, under the presidency of Dr. Lydia M. DeWitt. Dr. H. Gideon Wells gave an address on "Leiomyoma of the Stomach with Fatal Outcome."——Prof. Hans Finsterer, Vienna, will be the guest of the Chicago Medical Society, October 17, at the first scientific meeting of the season. The next regular meeting of the Chicago Orthopedic Club will be held November 7. Moving pictures of orthopedic operations will be shown, and Dr. John Ridlon will preside.

Medical Regiment Organized.—Recruiting to full strength of the One Hundred and Eighth Medical Regiment of the Thirty-Third Division is progressing daily, it was announced, October 1, by Col. Harry D. Orr. Twenty-five officers and 200 men are needed before the regiment can be federalized. Training in medicine or pharmacy is not essential to become a member. The full regiment will consist of a field hospital, two ambulance companies, a sanitary company, headquarters section, medical supply section, medical laboratory section, dental section and veterinary company.

INDIANA

Study of Malnourished Children.—In a study of 6,150 children at Gary, the children's bureau of the U. S. Department of Labor, Washington, D. C., found undernourishment and physical defects in a large percentage of the children, it was announced, September 29. The Gary study is the first investigation by the bureau of the "neglected age of childhood"—between babyhood and school. Less than 10 per cent. of the children studied were receiving diets that appeared adequate to their needs; 29.2 per cent. had diets whose inadequacy was highly questionable, and 60.5 per cent. of the entire group had diets plainly incapable of supplying their bodily requirements. Only 18.9 per cent. of all the children were getting a pint of milk a day, and 57.6 per cent. had no milk at all. Two thirds of the group were found to drink coffee habitually, and 40 per cent. to have it more than once a day. Vegetables, fruits, cereals and eggs were likewise conspicuously lacking. Following a physical examination, 64.7 per cent. were found to have decayed teeth, while 14.9 per cent. had bone defects as the result of inefficient diet. Only 4.8 per cent. had no defects at all.

IOWA

Medical Meeting.—At the meeting of the Southwestern Iowa Medical Society in Leon, September 20, the following officers were elected: president, Dr. Fred A. Bowman, Leon; vice president, Dr. John C. Parsons, Creston, and secretary, Dr. Jesse S. Coontz, Garden Grove. Dr. Frank E. Sampson, Creston, field secretary of the state medical association, gave an address.

University News.—The department of theory and practice of medicine of the State University of Iowa Hospital, Iowa City, has just completed a course for physicians in dietetic regulation and insulin therapy. Twenty-three physicians from various parts of the state took the course. A second course will be given at a later date.——The social service department of the University Hospital has increased its staff by five workers.

LOUISIANA

Hospital News.—St. Luke's Hospital, New Orleans, purchased by Mrs. L. M. Soniat as a memorial to her husband, was formally turned over to the Sisters of Mercy, October 1. The institution will be readapted for the care and treatment of charity patients.

Dr. Callan Indicted.—Dr. John Callan, health officer of New Orleans, was indicted on two counts, September 28, by the Orleans Parish grand jury, as the result of his alleged failure to take immediate steps to have two persons suffering from leprosy isolated (THE JOURNAL, September 29, p. 1119).

MAINE

Medical Examiners Appointed.—Governor Baxter has appointed the following physicians as medical examiners: Royce B. Josselyn, Portland; Charles D. North, Rockland; Irving E. Mabry, Bridgton, and Horatio W. Frohock, Rockland.

Hospital News.—The residence of Dr. James H. Shannon, Saco, has been purchased under the will of Mrs. Lucia Kimball, Boston, as the site for a hospital, to be known as the Kimball Hospital, in memory of Dr. J. E. L. Kimball, for many years a practicing physician in Saco. The sum of $131,000 was left for this purpose.——Another story will be added to the main administration building of the Central Maine General Hospital, Lewiston, at an estimated cost of $25,000.

MARYLAND

Health Officers Appointed.—Dr. C. Hampson Jones, commissioner of health for Baltimore, has appointed the following health officers: Dr. Leon Ginsberg, for the public schools, and Dr. Joseph Sindler, to replace Dr. Augustine Palmisano, relieved from duty because of illness.

Medical Society Endorses Plan for Insane.—At a meeting, October 5, the Baltimore City Medical Society adopted resolutions urging a ten-year program of expansion of the state insane hospital system. This program will provide for 1,900 new beds in the various state hospitals, raising the capacity from 4,100 to 6,000, and will mean an expenditure of at least $2,000,000. A psychopathic reception ward will be established at the Spring Grove State Hospital, which would receive all of the new admissions from Baltimore and result in closing the department for the insane at Bay View.

Improvements at Penal Institutions.—Extensive improvements at the Maryland Penitentiary and the Maryland House of Correction have been considered by the board of welfare (THE JOURNAL, October 6, p. 1213). A medical program outlined several months ago by a committee of which Dr. Francis L. Dunham was chairman resulted in the appointment of Dr. Milton C. Lang as resident (intern) physician at the penitentiary and the resignation of Dr. William F. Schwartz, a part-time physician there. The institution now has a day and night resident physician, two trained nurses, and a social worker.

MASSACHUSETTS

The Cutter Lecture.—The first Cutter lecture of the season will be delivered at the Harvard Medical School, Boston, October 17, by Sir Arnold Theiler, director of veterinary education and research, Union of South Africa, and professor of animal pathology, University of South Africa. His subject will be "Phosphorus Deficiency in Animals: Its Effects and Prevention."

Changes in the Faculty of Harvard Medical School.—The administrative board for the Harvard Medical School, Boston, for the coming year will consist of President Abbott L. Lowell, Dean David L. Edsall, ex officio chairman, Profs. Algernon Coolidge, Hans Zinsser, New York, Harvey Cushing, Reid Hunt, Simeon Burt Wolbach, Walter B. Cannon, Charles M. Campbell and Francis W. Peabody, and Associate Profs. John L. Bremer, William Worth Hale and Kenneth D. Blackfan. Dr. Harris P. Mosher, formerly assistant professor of laryngology, has been promoted to a full professorship, and Dr. Stanley Cobb has been appointed professor of neuropathology. Dr. Andrew W. Sellards, assistant professor of tropical medicine, and Dr. Marshall Fabyan, assistant professor of comparative pathology, have been reappointed for a three-year term. In the Harvard School of Hygiene and Public Health, Dr. Cecil K. Drinker, formerly associate professor of physiology, has been appointed to a full professorship.

MICHIGAN

Upper Penninsula Medical Society.—At the annual meeting of this society at Iron Mountain, August 22-23, Dr. Joseph A. Crowell, Iron Mountain, was elected president, and Dr. Charles E. Ennis, Sault Ste. Marie, vice president. Drs. Benjamin F. Lounsbury, Chicago, Arthur M. Hume, Owosso, Beverly D. Harison, Detroit, and Guy L. Connor, Detroit, were among the visiting physicians who attended the meeting.

Medical Reporting Law Declared Invalid.—In the suit brought against Dr. Curtis T. Wolford, Grand Rapids, for failing to report to the state health department the name of a patient he had treated for venereal disease, Judge Leonard Verdier in the superior court, September 18, ruled that the law making health officers who fail to report cases of private diseases guilty of a misdemeanor, was unconstitutional, as the objective of the act was not fully expressed in the title. Dr. Richard M. Olin, Lansing, state health commissioner, announced, September 20, that he will take up, with the state health council, the question of seeking an amendment to the law or adoption of a new law to remedy the defects in the title of the present law. The subject was previously placed before the state medical society by Dr. Udo J. Wile, professor of dermatology, University of Michigan Medical School, Ann Arbor, who stated that he and his colleagues felt that it was impossible to expect members of the medical profession to obey the requirement of the health commissioner that they reveal names of their patients suffering from venereal disease. He stated that the state authorities had refused to agree to a change to the rule that would permit the cases to be reported by number instead of by name.

MISSOURI

Hospital News.—The residence recently purchased by Dr. Robert R. Ellis, Kirksville, at 819 East Illinois Street, will be equipped as a fifteen-bed hospital with roentgen-ray and operating rooms.——Dr. William D. Sample has purchased a residence on Merchant Street, Ste. Genevieve, which will be remodeled and used as a hospital.——The South Side Hospital, Carrollton, has been reopened. Dr. Robert M. Benson is in charge.

Insulin Courses at St. Louis.—The enrolments for courses in the dietetic and insulin treatment of diabetes, which are being given at the Barnes and St. Louis Children's hospitals, are filled for the periods beginning October 1 and October 15. There are vacancies in the course beginning October 29. Applications have been received not only from places in Missouri but from Kansas, Iowa, Texas, Oklahoma, Nebraska, Illinois and Minnesota. In view of the interest shown, it has been decided to give courses November 12-14, November 26-28, December 10-12 and December 27-29, inclusively. Physicians desiring to take these courses should write to the superintendent of Barnes Hospital, 600 S. Kingshighway, St. Louis.

NEBRASKA

Joint Medical Meeting.—A joint meeting of the Interstate Society of Radiology and Physiotherapy and the Missouri Valley Medical Society was held at Omaha, September 18-21. The name of the former society was officially changed to the American College of Radiology and Physiotherapy. Dr. Samuel B. Childs, Denver, was elected president, and Dr. Roy W. Fouts, Omaha, secretary-treasurer. Dr. Floyd H. Spencer, St. Joseph, Mo., presided over the sessions of the thirty-sixth annual meeting of the Missouri Valley Medical Society. Dr. William T. Wootton, Hot Springs, Ark., delivered the oration on medicine. Officers were elected as follows: president, Dr. Henry J. Lehnhoff, Lincoln; vice presidents, Drs. Palmer Findley, Omaha, and Joseph C. Waterman, Burke, S. D.; treasurer, Dr. Oliver C. Gebhart, St. Joseph, Mo., and secretary, Dr. Charles W. Fassett, Kansas City, Mo. Des Moines was selected for the next meeting.

NEW JERSEY

Memorials to Physicians.—The Kiwanis Club, Atlantic City, has presented the Atlantic County Hospital for Tuberculosis, Pleasantville, with a solarium for children, to be known as the Munro Memorial Solarium, in memory of Dr. Henry C. Munro, who died in September, 1922. At the time of his death, Dr. Munro was superintendent of the Atlantic County Hospital for the Insane, Northfield.——The board of trustees of the state medical society has ordered a tablet to the memory of the Rev. Robert McKean, M.D., the founder and first president of the Medical Society of New Jersey, to be erected in St. Peter's Episcopal Church, Perth Amboy, and to be unveiled at the two hundred and twenty-fifth anniversary celebration of the church, November 4. Dr. McKean was formerly rector of the church and a practitioner in Perth Amboy in 1766.

NEW YORK

Sale of Drugs Forbidden.—The department of health of New York City has adopted a section of the Sanitary Code that prohibits the sale at retail of veronal, veronal sodium, luminal, luminal sodium, sulphonal, trional, or tetronal except on the written prescription of a licensed physician. Since the adoption of this regulation few, if any, deaths have been traced to these drugs.

University of Buffalo.—Instruction in the sciences fundamental to dentistry will be given at the University of Buffalo hereafter in the departments of anatomy, biochemistry, pathology, pharmacology and physiology of the school of medicine. To care for this work in the department of anatomy, of which Prof. Wayne J. Atwell is head, the following additions have

been made to the staff: Dr. Rufus R. Humphrey, formerly of Cornell University, New York, associate; Walter F. Greene, Yale University, New Haven, Conn., associate, and Ernest B. Hanan, University of Missouri, St. Louis, instructor.

New York City

Academy of Medicine Increases Membership.—At the first stated meeting, October 4, an amendment to the constitution of the New York Academy of Medicine was adopted providing for an increase in the number of fellows residing in New York from 1,400 to 1,450, and of the number not residing in the city to 300.

Lepers at Clinics.—Eight lepers from Riverside Hospital, North Brother Island, were presented as typical cases of leprosy at the dermatologic clinics held at the New York Academy of Medicine, October 2. The eight, four Chinese, three Greeks and one Dutch Guianian, had been found in the city or trying to enter the country within the past two months. They are in isolation until they can be deported or transported to the government leprosarium at Carville, La.

The New York City Cancer Institute.—This institute, which has been established by Bird S. Coler, commissioner of public welfare, as a part of his department, for the benefit of the poor of New York City, is now in full operation. The clinic division of the institute is located on East Fifty-Ninth Street, where ambulatory patients can be seen from 2 to 4 p. m. daily. The hospital division of the institute is located on Welfare Island. Beginning with October, 1923, there will be held at the clinic building clinical conferences at which unusual cancer cases will be presented. If physicians who desire to take part in the conferences will send their names and addresses to the institute, they will receive notices of the meetings. The institute is equipped to care for 200 or more cancer patients at the same time. Dr. Isaac Levin, director of the institute, is being assisted by Dr. John D. Fitzgerald, Dr. Walter H. Conley and Dr. Charles B. Bacon.

OHIO

Society of Clinical and Laboratory Diagnosis.—At the recent meeting of the Ohio Society of Clinical and Laboratory Diagnosis in Columbus, the constitution and by-laws were adopted, and complete organization was accomplished. Dr. Thomas L. Ramsey, Toledo, was elected president, and Dr. James B. Rucker, Jr., Toledo, secretary-treasurer. The next meeting of the society will be held at the same time as the annual meeting of the state medical association in Cleveland in 1924.

Criminal Identification Law.—A law passed by the last session of the Ohio state legislature, fostered by Dr. Charles F. Clark, Columbus, and sponsored by the Columbus Academy of Medicine, has resulted in the establishment of the Central Bureau of Criminal Identification. The bill provides the administrative machinery necessary to gather, compile and tabulate records of criminals arrested within the state and elsewhere, through the cooperation with other Bertillon departments. Previously, various cities in the state had files of criminal records for their own use, but the usefulness of the files was limited to local fields. In the future, police officials of all cities and communities in Ohio will be required to take the finger prints and other records of all persons arrested on felony charges. These records are to be forwarded immediately to the central bureau.

Public Health News.—The fourth annual conference of Ohio health commissioners, to which all members of the Ohio medical profession are invited, will be held at Columbus, November 19-23. A full attendance of health commissioners is required by the director of health. A health exposition will be held in conjunction with the meeting. Topics for discussion will be: "The Campaign of Diphtheria Prevention," "The Value of the Periodic Health Examination," "Methods of Conducting and Evaluating County Health Work," and "The Fundamentals of Public Health Nursing." Among the speakers will be Dr. William H. Park, Dr. George E. Vincent and Dr. Haven Emerson of New York City; Dr. Leslie L. Lumsden, Washington, D. C., assistant surgeon general of the U. S. Public Health Service, and the state health commissioners of Indiana, Kentucky, West Virginia, Pennsylvania and Michigan.——At the thirty-third annual meeting of the Ohio Welfare Conference to be held at Lima, October 16-19, health and welfare problems of the state will be discussed. Judge C. W. Hoffman, Cincinnati, is president of the conference. Dr. Rosco G. Leland, Columbus, state department of health, will preside over the health section.

PENNSYLVANIA

State Medical Examiners Elected.—The newly appointed members of the Bureau of Medical Education and Licensure of Pennsylvania are: Dr. Adolph Koenig, Pittsburgh; Dr. William M. Hillegas, Philadelphia; Dr. Walter Estell Lee, Philadelphia; Dr. Irvin D. Metzger, Pittsburgh, and Dr. Mere V. Hazen, Harrisburg.

State Medical Election.—At the seventy-third annual meeting of the Medical Society of the State of Pennsylvania at Pittsburgh, October 1-4, the following officers were elected for the ensuing year: president, Dr. Howard C. Frontz Huntingdon; president-elect, Dr. John Norman Henry, Philadelphia; first vice president, Dr. Ernest W. Willetts, Pittsburgh; secretary, Dr. Walter F. Donaldson, Pittsburgh, and treasurer, Dr. John B. Lowman, Johnstown. October 4, a public meeting was held at which Dr. Frederick C. Banting, Toronto, Canada; Dr. John R. Williams, Rochester, N. Y., and Dr. Louis H. Newburgh, Ann Arbor, Mich., gave addresses.

Philadelphia

Personal.—Mrs. Mary Irwin Jump, wife of Dr. Henry D. Jump, has been appointed assistant director of the department of public welfare, to succeed Dr. Blair Spencer, who was recently appointed director of public health.—— Drs. Laura H. Carnell, dean of Temple University, and William H. Ziegler were appointed by the board of judges to the board of education, Philadelphia.

University of Pennsylvania Acquires Relics of Pasteur.—Parts of the original chemical apparatus used by the famous French scientist, Louis Pasteur, in his experiments, are now at the University of Pennsylvania. They were brought to this country by Dr. John Frazer, dean of the Towne Scientific School, who recently returned from France, where he spent a year as exchange professor from six American universities. Through him the apparatus will be divided among the universities associated with Pennsylvania in the exchange of professorships of applied science between American and French universities.

RHODE ISLAND

Hospital News.—Plans are being revised for the new service building of Memorial Hospital, Pawtucket.——The Homeopathic Hospital, Providence, has awarded a contract for the erection of a $600,000 building.

Director of State Institutions Appointed.—Louis H. Putnam, executive director of the board of children's guardians of the state of West Virginia, has been appointed director of state institutions of Rhode Island by the state public welfare commissioner, and will assume his duties in November. He succeeds Dr. Johnson, New York, who has been acting director of the institutions of Rhode Island since June 1.

SOUTH CAROLINA

Physicians Protest Against Chiropractor.—Protest on behalf of the Cherokee County Medical Society against the city of Gaffney granting a license to C. O. Sprinkle, a chiropractor of Winston-Salem, N. C., was registered, September 21, by Dr. Walter Boone, county health officer, president of the county society. He stated that should Sprinkle receive a city license and practice in Gaffney, a warrant for his arrest would be sought on a charge of practicing medicine without a license from the state board.

Rabies.—According to a report from the state department of health, an average of more than two persons a day are bitten by mad dogs in the state. A campaign is being conducted to secure a law at the next session of the state legislature compelling owners of dogs to have them vaccinated against rabies. The number of persons bitten by rabid dogs has increased from 176 in 1912 to 769 in 1922. A total of 3,088 persons have received the Pasteur treatment during the ten-year period, with fourteen deaths.

VERMONT

New Hospital for University.—Miss Laura Ainsworth of Williamstown, Mass., who donated funds for the erection of the Ainsworth Hospital at Norwich University Hospital, Northfield, has now offered to build an isolation hospital in connection with the institution. Construction work was started in September. Besides private rooms, the building will contain two large wards, nurses' dormitories, and quarters for physicians and attendants.

WASHINGTON

Hospital News.—The contract has been let for the erection of a $310,000 building in Olympia, to be known as St. Peter's Hospital, to be built by the Sisters of Charity of the House of Providence. The building will be five stories high and of steel and concrete construction.——Dr. Katherine M. Dullea, Portland, Ore., has purchased a twenty-seven room residence at Port Townsend, which will be converted into a sanatorium.

State Medical Meeting.—At the thirty-fourth annual meeting of the Washington State Medical Association in Spokane, September 20-22, the following officers were elected for the ensuing year: president, Dr. William F. West, Everett, to succeed Dr. John H. O'Shea, Spokane; vice presidents, Drs. John Reid, Morrison, Bellingham, and Frederick H. Brush, Yakima, and secretary-treasurer, Dr. Curtis H. Thomson, Seattle (reelected).

WEST VIRGINIA

Personal.—Dr. Olin H. Jennings, Williamson, has been appointed by Governor Morgan as a member of the West Virginia Health Council to succeed Dr. Benjamin F. Shuttleworth, Clarksburg, whose term has expired.

WISCONSIN

State Medical Meeting.—At the seventy-seventh annual meeting of the State Medical Society of Wisconsin at Milwaukee, October 3-5, the following officers were elected for the ensuing year: president, Dr. L. Rock Sleyster, Wauwatosa; vice presidents, Drs. Michael R. Wilkinson, Oconomowoc, John R. Minahan, Green Bay, and Carl M. Beebe, Sparta. Mr. J. G. Crownhart, Milwaukee, is secretary of the society. The next meeting will be held in Green Bay in 1924.

Personal.—Dr. Robin C. Buerki, Burns, Ore., has been appointed superintendent of the new state general hospital at Madison, it was announced by the board of regents, September 6.——Dr. Laurence H. Prince, for five years superintendent of the state school for dependent children at Sparta, is now a member of the medical staff at Waukesha Springs Sanatorium.——Dr. Adellon D. Andrus, Ashland, has been appointed county physician.——Dr. George H. Williamson, Neenah, was recently elected president of the National Fraternal Congress of America at the annual convention.——Dr. Porras, government physician on the Rosebud Indian Reservation, South Dakota, has been transferred to the Lower Brule Reservation, Wisconsin. Dr. Porras is a native Filipino.——Dr. Charles Reineck, Appleton, returned in September from a trip around the world.

CANADA

Lister Oration.—The Canadian Medical Association is arranging for a Lister oration to be given once every three years. The first of these will be given at the annual meeting of the association in Ottawa, in 1924, by Dr. John Stewart, Halifax. Dr. Stewart was one of Lister's house surgeons in Scotland.

Hospital News.—A new wing will be erected at St. Michael's Hospital, Toronto, on the Victoria Street property recently purchased by the authorities. The new structure will be five stories high, with a frontage of 200 feet.——The contract has been let for the erection of the new addition to the city Hospital, Hamilton, Ont. The institution will have a capacity of 400 patients.——A new pavilion is under construction at the Hamilton General Hospital which will contain the outpatient department, the operating rooms, laboratories, interns' quarters and semiprivate wards. This pavilion will increase the capacity of the hospital to 500 beds.——The new forty-bed addition to the Queen Alexandria Hospital, London, Ont., is nearly completed.——A new addition is being erected at the Free Hospital for Consumptives, Weston, Ont., at a cost of $80,000.——The first unit of the new buildings for the Orange Home, Indian Head, is being erected at a cost of $17,000.——A new $100,000 addition will be erected at St. Martha's Hospital, Antigonish.——A new wing containing the outpatient department, semiprivate wards and other accommodations will be erected at the Western Hospital, Toronto, of which A. C. Gilbraith has recently been elected superintendent.——The recent death of Mrs. Elizabeth Jordan, in California, disclosed that she had willed large sums of money in trust, the income of which is to be used for current expenses at the Jordan Memorial Sanatorium, River Glade, N. B. The institution now has a capacity for 500 patients.

GENERAL

National Campaign for Pure Milk.—The Conference of State and Provincial Health Authorities and the American Child Health Association, in conjunction with the Association of American Dairy Food and Drug officials, will institute a national pure milk campaign under the leadership of Herbert Hoover. Improvement of standards of health for children and safeguarding the nation's milk supply are the objectives.

Provisional Birth Figures for 1923.—The Department of Commerce announces that provisional birth figures for the first three months of 1923 indicate slightly lower birth rates than for the corresponding three months of 1922. For the states compared, the birth rate for the first three months was 22.4 in 1923 as against 23.6 in 1922. The highest birth rate for the three months is shown for North Carolina (27.6), and the lowest for Vermont (15.8).

American Neurologists Elect.—At the recent annual meeting of the American Neurological Association in Boston, the following officers were elected for the ensuing year: president, Dr. Charles K. Mills, Philadelphia, to succeed Dr. Harvey Cushing, Boston; vice presidents, Dr. Charles L. Dana, New York, and Dr. Morton Prince, Boston, and secretary-treasurer, Dr. Frederick Tilney, New York. A joint session was also held with the American Psychopathological Association. Philadelphia was selected for the 1924 meeting.

Provisional Mortality Figures for 1923.—The Department of Commerce announces that provisional figures for the first three months of 1923 show for the states compared the death rate for the three months was 15.3 in 1923 against 13.9 for the first three months of 1922. If the ratios of the crude rates to the adjusted rates for 1922 be applied to the 1923 quarterly rates, the poorest showing for the first quarter of 1923 appears for Maryland, with an adjusted rate of 18.8, and the best showing appears for Montana, with a rate of 10.1.

Society News.—The sixth annual meeting of the American Dietetic Association will be held in Indianapolis, October 15-17, under the presidency of Octavia Hall Smillie, Andalusia, Ala. Dean Charles P. Emerson, of the Indiana College of Medicine, Indianapolis, will be the guest of honor at the annual banquet. There will be sections on administration, dietotherapy, education and social service. Dr. Ruth Wheeler, University of Iowa Medical School, Iowa City, and Dr. Louis H. Burlingham, superintendent, Barnes Hospital, St. Louis, will be among the speakers.

Narcotic Forms Stolen.—Federal order forms for opium, heroin and morphin, on which an almost unlimited supply of narcotics might be secured, have been stolen from an unnamed government office or from the mails. All dealers of narcotics are warned by the collecter of internal revenue for the northern district of Illinois not to fill an order form on which one of the following serial numbers appears: U556915, Y696571, X393252 to X393260, X670707 to X670710, Y739051 to Y739060, Y964961 to Y964970, Y968541 to Y968550. They are also cautioned against filling any order forms on which alterations of the serial number have been made.

Conference on Industrial Accidents.—At the tenth annual meeting of the International Association of Industrial Accidents Boards and Commissions at St. Paul, recently, the medical aspects of the work of state compensation bodies were discussed. Dr. Frank E. Burch, St. Paul, spoke on "Hygiene of the Eye in Connection with Prevention of Ocular Injuries," and Dr. Arthur S. Hamilton, Minneapolis, read a paper on the "Differential Diagnosis Between Organic and Functional Nervous Conditions Following Injury." Both papers were followed by round table discussions under the chairmanship of Dr. Robert P. Bay, Baltimore, of the State Industrial Accident Commission of Maryland.

Committee of One Hundred Disbands.—The Committee of One Hundred on National Health, which was interested in national health education and the establishment of a health department in the federal government, has suspended work for some years. Prof. Irving Fisher of Yale University is president of the committee. Many of the members are interested in other organizations which aim ultimately to establish a national department of health. Under these circumstances, the executive committee voted that the organization should now be disbanded, and the small amount of funds remaining be turned over to the Eugenics Committee.

Public Health Conference.—The International Committee of Experts on Industrial Hygiene, appointed to assist the International Labor office of the League of Nations in dealing with questions affecting the health of workers, has concluded

a conference in Geneva, Switzerland. This committee, appointed in accordance with resolutions adopted by the International Labor Conference at Washington, D. C., in 1919, is composed of medical inspectors of factories and others having technical and scientific knowledge of industrial hygiene from more than twelve countries. Two subjects were discussed: (1) protection from anthrax of workers engaged in handling hides and skins, and (2) the compilation of a list of the principal industrial processes to be considered unhealthy.

LATIN AMERICA

Revaccination Made Obligatory in Uruguay.—The senate of Uruguay recently confirmed the obligatory revaccination bill, which requires obligatory revaccination every ten years. The bill is stated to be an extension of the obligatory vaccination law previously in force.

National Public Health Conference in Argentina.—An important gathering was held recently at Buenos Aires of delegates from the provinces to discuss ways and means for extending and improving the public health service throughout the country, with concerted action against epidemics and epizootics. The director of the public health service, Dr. Gregorio Aráoz Alfaro, presided. The various delegates from the provinces presented their views as to the most feasible organization for the purpose, and a committee was appointed, consisting of Drs. Rodríguez Jáureguy, Buenos Aires; Benigno Portela, Córdoba; Aldo Cantoni, San Juan; Roque Coulín, Santa Fe, and A. Schneidewind, Santiago del Estero, to study the various plans and decide on the one to be adopted.

FOREIGN

Necropsies Permitted in Italy.—A recently passed Italian law authorizes directors of university clinics and hospital chiefs to override opposition to a necropsy if it is considered necessary to science.

German Pediatricians Meet.—The annual meeting of the German Pediatric Society was held in Göttingen, September 21-22. A discussion was held on the endocrine glands, in which Drs. Schiff of Berlin, Birk of Tübingen, Thomas of Cologne, and Goett of Munich took part.

French Congress on Hygiene.—The subjects to be discussed at the Tenth French Congress on Hygiene, to convene at Paris, October 22, are "Hygiene in Transportation"; "Bacteria from the Point of View of Biologic Purification"; "Surveillance of Sources of Drinking Water" and the perennial garbage question.

Postponement of International Congress on Comparative Pathology.—Our European exchanges state that Prof. E. Perroncito of Turin, president of the much postponed international congress on comparative pathology, announces its further postponement until 1924. It had been finally scheduled to meet at Rome, Oct. 7, 1923, but the committee on organization has been unable to make full preparation for it.

Cancer Research in Italy.—The *Policlinico* relates that the Romagna district in Italy, near Bologna, has the reputation of the highest incidence of cancer, and the medical society of the province has organized a campaign against it. The inaugural meeting was held at Faenza, and among those participating was Sambon, of the British Empire Cancer Committee, who had come to the Romagna for epidemiologic study of cancer.

Graduate Study in Glasgow.—A central organization has been formed—the Glasgow Post-Graduate Medical Association—for the purpose of arranging, coordinating, and administering postgraduate medical teaching in Glasgow and the West of Scotland. General and special courses will be arranged, and a comprehensive permanent scheme has been adopted. It is anticipated that Glasgow will become one of the leading centers of graduate medical teaching in the near future.

Venereal Disease in London.—The public health report for 1922 states that the number of new cases of venereal disease dealt with at the hospitals in London in 1922 was 23,811, of which 6,809 were syphilis, 10,632 gonorrhea and 321 soft chancre. As compared with 1921, there is a decrease in every class—1,379 in syphilis, 77 in gonorrhea and 150 in soft chancres. The total attendance was 529,003, and examinations of pathologic specimens have largely increased, the number from treatment centers being 75,351, besides 18,507 from private practitioners. Failure to complete treatment is not so frequent as would appear, because the definition of cure is now much more strict than formerly.

Kitchener Memorial Medical School.—Construction work on the Kitchener Memorial Medical School for Sudanese students at Khartoum, North Africa, has been started. The immediate object is to give a four years' period of instruction to twelve selected students each year. The proposed curriculum allots two years to pure and applied science and two years to medicine, surgery, midwifery and hygiene, outpatient attendance being required for the last three years; a diploma will be conferred on successful candidates, practice being limited to the Sudan and based on certain specified conditions. The medical school will be an integral part of the Gordon Memorial College, Khartoum, where the Wellcome Tropical Research Laboratories are located. The sum of $200,000 is still needed for the endowment fund, only $100,000 having been contributed up to date.

West African Congress on Tropical Medicine.—The first congress of Tropical Medicine in West Africa was held, July 16-23, at Loanda, Portuguese West Africa. The object was to discuss means of solving medical and sanitary problems, particularly with regard to the native inhabitants of the colonies represented. The first session was devoted to sanitary organization, and the following five sessions to practical methods in prophylaxis and treatment of prevalent disease. The chief subjects discussed were lethargic (epidemic) encephalitis, malaria, tuberculosis, leprosy and schistosomiasis. Seventy-six delegates attended, representing Angola, Portugal, Belgian Congo, San Tomé, Cameroon, French West Africa, French Equatorial Africa, Portuguese India, Mozambique, Paris, the Union of South Africa, Nigeria and the London School of Tropical Medicine. Two prizes of 10,000 francs each were offered, one for a paper on the best practical methods of hospital treatment of the native; the other for the most outstanding work in the proceedings of the congress. The next congress will be held at Dakar, Senegal, French West Africa, in 1927.

Foreign Congresses.—The annual congress of the French Association of Pediatrists was held at Brussels under the presidency of Prof. V. Péchère, October 4-7. The following subjects were discussed: "Prolonged Pneumonia in Children," Dr. Charles Gardère, Lyons; "Diagnosis and Treatment of Intussusception," Dr. Raphael Massart, Paris, and "Medico-Pedagogic Treatment of Abnormal Children," Dr. Decroly, Brussels.——The twentieth congress of the Italian Society of Laryngology, Otology and Rhinology was held at Bologna, October 8-10, when discussions were held on "Otitic Pyemia," introduced by Professors Federici and Torrini.——The next International Congress of Thalassotherapy (the sea) will be held at Arcachon, France, in 1925, when the marine treatment of rickets will be discussed. The last congress was held at Venice, April, 1922.——The Australasian Medical Congress (the first to be held under the direction of the federal committee of the British Medical Association in Australia) will be held in Melbourne, November 12, under the presidency of Mr. G. A. Syme, F.R.C.S. Sir William Macewen, regius professor of surgery at the University of Glasgow and president of the British Medical Association, 1922-1923, will represent the parent association. An exposition of trade products, including medical and surgical instruments, books, drugs and foods, will be held in the new anatomy department of the University of Melbourne, which will be officially opened during the congress.

Deaths in Other Countries

Dr. **Gustavus Hartridge,** consulting surgeon, Royal Westminster Ophthalmic Hospital, and lecturer on ophthalmology at Westminster Hospital, London; author of many medical works including "Retinoscopy"; formerly secretary of the section of ophthalmology of the British Medical Association.——Sir **Halliday Croom,** professor of midwifery, Edinburgh University, and ex-president of the Royal College of Surgeons, Edinburgh, and the British Gynecological Society; honorary fellow of the American Society of Gynecologists; died, September 27, aged 76.——Dr. **T. Lycklama,** formerly of Rotterdam, aged 86. He was one of the founders of the yearly directory of the profession published in the Netherlands.——Dr. **A. Jurasz,** professor of laryngology at the University of Lwow, Poland, formerly of Heidelberg, aged 75.——Dr. **Rodrigues Lima,** professor emeritus of pathology at the University of Rio de Janeiro, aged 68.——Dr. **X. Santero,** physician to the Spanish embassy at Buenos Aires, formerly professor of hygiene at Madrid.——Dr. **Delcroix De Coster,** president of the Belgian Urologic Society.——Dr. **G. Trautmann,** Munich, author of numerous works on otorhinolaryngology, aged 57.——Dr. **M. Heitler,** formerly professor of internal medicine at Vienna, noted for his literary writings, aged 76.

Government Services

Soldiers' Home Open to Women

The War Department announced, October 2, that former service women are to be admitted to soldiers' homes. The board of managers of the National Homes for Disabled Volunteer Soldiers has decided to provide separate facilities for women at selected points. Tuberculosis cases will be accommodated at the Milwaukee home, and other cases at Danville, Ill. According to the disability claims received at the U. S. Veterans' Bureau, it is estimated that about 450 women would be eligible for admission.

General Hospitals Authorized

Pursuant to instructions of the Secretary of War, the organization of General Hospital No. 75 (George Washington University Hospital Unit, Washington, D. C.), organized reserves, has been authorized.

Pursuant to instruction from the Secretary of War, the organization of General Hospital No. 73 (Franklin Square Hospital Unit, Baltimore) Organized Reserves, has been authorized.

Financing of New Hospital

Following a conference on ways and means of the U. S. Veterans' Bureau, Washington, D. C., recently, the director of the bureau announced that repeated complaints regarding the neglect of psychopathic ex-soldiers may bring about the construction of a new hospital at the Great Lakes Naval Training Station, to be used exclusively for such cases, provided sufficient funds are available. It is said that 591 ex-service psychopathic cases are being cared for in county and state institutions in Illinois alone, and that 150 are being cared for in private homes. The proposed hospital would care for all psychopathic cases in the eighth district of the U. S. Veterans' Bureau, comprising Illinois, Michigan and Wisconsin.

Major Reduced Twenty-Five Files

Major George W. Cook, M. C., U. S. Army, commanding officer of the hospital at Fort Eustis, Va., was found guilty by a court martial, at Washington, D. C., October 4, on two counts, of a charge resulting from the treatment of Private Guy Pendleton, who was injured in a motorcycle accident. The penalty imposed on Major Cook was a reprimand and a reduction of twenty-five files in the list of majors. Capt. Samuel C. Gwynn, retired, will also be court martialed in connection with this case.

Physical Defects in Army Officers

Statistics compiled in the office of the Surgeon General of the army show that, among 12,000 regular army officers examined this year by army medical boards, approximately 9,000 were found to have physical defects sufficiently important to justify notation on the reports. The abnormalities most frequently reported were of the nose, throat, teeth, gums and mouth; overweight, pes planus, arterial hypertension and defective vision. A large proportion of the defects were in their incipiency, but would, in many instances, if allowed to persist, impair health and efficiency. Physical examinations of army officers are made annually; and it is Surgeon General Ireland's plan to use the information thus collected—not to eliminate officers from the service—but to overcome the defects by corrective medical treatment and thus hold the officers in the service.

Veterans' Bureau Investigation

The special committee appointed by the Senate at the last session of Congress to investigate the Veterans' Bureau will hold its first public hearing at Washington, D. C., on October 22. Director General Hines, of the Veterans' Bureau, has been informed that he will be the first witness. It is understood that a large number of other witnesses will be called before the committee, although no names have been made public. The committee was appointed for the purpose of investigating charges of alleged extravagance, waste and maladministration. The committee consists of Senators Reed of Pennsylvania, Walsh of Massachusetts and Oddie of Nevada.

Foreign Letters

PARIS

(From Our Regular Correspondent)

Sept. 21, 1923.

International Cooperation in Intellectual Work

The fifth commission of the League of Nations has adopted a resolution presented by M. Jacques Bardoux (France) recommending the transformation of the secretaryship of the commission on intellectual cooperation into an international bureau for the collection and distribution of information of interest to universities.

Red Cross Aid to the Earthquake Sufferers in Japan

The executive committee of the three constituent societies of the French Red Cross has appropriated 50,000 francs as emergency aid for the Japanese earthquake victims, and, in addition, has decided to open a general subscription in Paris and throughout the provinces. The funds thus collected will be distributed through the Japanese Red Cross.

Death of Victor Nodet

Dr. Victor Nodet of Bourg, formerly hospital intern of Lyons, has died at the age of 50. Nodet was born at Bourg, department of Ain, and succeeded his father, Dr. Amédée Nodet, in that city. With his professional qualities, he possessed a high artistic sense which secured his admission to several learned societies. He published a monograph on Brou church, which forms part of the collection "Grands édifices de la France"; also a study on "The Windows of Old Brou Church," in the work by L. Bégule on the "Vitraux de la région lyonnaise."

Death of Dr. Paul Hamonic

Dr. Paul Hamonic has died at the age of 65. About thirty years ago, he founded the *Revue d'andrologie et de gynécologie*. His collection of surgical instruments of earlier epochs, not only in his specialty, diseases of the genito-urinary organs, but also in other branches of surgery, presents considerable interest. This collection was shown at the exhibit that was organized at the Faculté de médecine of Paris, on the occasion of the holding of the Congress of the History of Medicine.

International Congress on Puerperal Fever

Among the numerous congresses held at Strasbourg on the occasion of the celebration of Pasteur's centenary, the congress on puerperal fever, organized under the presidency of Dr. Bar, formerly professor of clinical obstetrics in the Faculté de médecine of Paris, was particularly interesting from the practical standpoint. It furnished also an opportunity to survey the history of puerperal fever, and the president of the congress, who lived through the historic period of pasteurian research, gave some personal reminiscences.

History of Puerperal Fever

The paper by Professor Couvelaire of Paris was in homage to Pasteur, who demonstrated to the Academy of Medicine at the memorable session of March 18, 1879, and afterward to the Academy of Sciences at the session of May 3, 1880, that the germ theory was applicable to the etiology of puerperal fever. This conception served as the scientific basis for effective prophylaxis. While he paid this tribute to Pasteur, Couvelaire also endeavored to do justice to his precursors Simpson, Semmelweiss, Lister, Coze and Feltz, and to many others who, by patient clinical observation and experimental research, had surmised the truth. It is noteworthy that it was at Strasbourg that Coze and Feltz, in 1869, were the first to discover streptococci in the blood of a woman suffering

from puerperal fever, and Pasteur must certainly have known of their researches when he began the study of puerperal infection.

Professor Bar recalled that Tarnier at first did not believe in the germ theory; he ascribed the spread of disease to contagion through the air. But he was shaken in his opinion by Lucas-Championnière, after the latter had paid a visit to Lister. Tarnier then tried the antiseptic method and, inside of a month, he found that the morbidity from puerperal fever had decreased remarkably. It was Tarnier who urged Pasteur to begin his researches. Unfortunately, at the beginning of the antiseptic period, highly toxic substances were used, such as phenol (carbolic acid) and mercuric chlorid, sometimes with serious accidents.

The Prophylaxis of Puerperal Fever

Hauch of Copenhagen did not stop with the development of the well known principles of asepsis, but considered in his paper certain special topics. He advised, for instance, that the douche be substituted for the bath. He does not consider palpation as dangerous as it is represented, provided, of course, it is carried out with aseptic precautions and lesions of the mucous membrane are avoided.

Hauch holds that the use of gloves has not materially changed the incidence of puerperal fever; in fact, gloves may even become dangerous if, trusting in their (often imaginary) protection, an operator neglects to scrub his hands. Schikelé of Strasbourg expressed the belief that the use of gloves by midwives may give them a false sense of security and cause failure in disinfection. Bar, on the other hand, protested vigorously against this opinion. He has found that gloves give added security, although, of course, the hands must also be disinfected. Bar would, in fact, like to see the use of gloves made obligatory, and recommends that, in every commune, obstetric bags be placed at the disposal of midwives for use with the poor.

SERUMS AND VACCINES IN PUERPERAL FEVER

According to Hauch, knowledge of antistreptococcus serum is so uncertain that it cannot be used for prophylaxis. Also Daels of Ghent declared that antistreptococcus serum is of no value as a prophylactic agent.

Rossier of Lausanne stated that he had used large doses of antistreptococcus serum (100 c.c.) successfully as a curative agent in streptococcus infections, but that an early bacteriologic diagnosis was necessary.

Daels referred to his use of autogenous vaccines, which he prepares in twenty-four hours. To this Chomé of Paris made two objections: First, much more than twenty-four hours is required for the proper preparation of an autogenous vaccine; second, vaccines are effective only in localized and not in generalized infections. Daels admitted that the first injection, which he makes without any selection of micro-organisms, acts quite as much through protein shock as it does through vaccine properties.

Hamm of Strasbourg reported disastrous results from prophylactic injections of phenolized vaccine. These injections caused abscesses and accidents the gravity of which was all the greater owing to the fact that delivery followed soon after the inoculation; even death had resulted in certain cases. Bar remarked that these experiments, while the results were regrettable from the therapeutic standpoint, are of real experimental value. They demonstrate in a very positive manner the sensitization of the woman by childbirth. Chomé stated that he had injected streptococci into nongravid rabbits without accident; but injection of the same strain of streptococci into rabbits at the end of gestation causes death after birth of the litter. These observations show the susceptibility of the pregnant woman and the influence of the terrain on puerperal infection. The anergy toward the end of pregnancy is general, not only for puerperal but also for other infections.

SUPPURATIVE PELVIC PHLEBITIS

Drs. Lequeux and Chomé of Paris called attention to suppurative pelvic thrombophlebitis, which must be distinguished from ordinary thrombophlebitis. There is, indeed, a therapeutic reason for this differentiation, since surgical intervention (ligation of the veins) may check the infection. Suppurative thrombophlebitis is distinguished in many ways from generalized infection; contrary to the present conception, the micro-organisms remain localized, and the general condition of the patient remains good, without chills. The occurrence of rigors is an indication that the infective agent is entering the circulation. Blood cultures may happen to be positive, but they are usually negative. Thrombophlebitis causes septic emboli, almost exclusively in the lungs. Death ensues from asphyxia resulting from the extension of the lesions. In the subacute forms, diagnosis is impossible. In the acute forms there is a periphlebitic period in which the clinical picture is obscure. At the height of the disease, diagnosis is based on tardy and repeated chills and an irregular temperature curve. The general condition of the patient remains good for a long time. Lequeux and Chomé advise operative intervention, neither too soon nor too late—not before the twelfth day, but yet before the onset of severe chills. It is too late to operate when pulmonary lesions predominate. Entry is made by the abdominal route. The vessel affected is ligated at the level of involvement (upper portion of the broad ligament or, more rarely, the lower level of the hypogastric fold) on both sides. As far as possible, the ligature should be placed on healthy tissue; but, if that is not feasible, it may be placed in the middle of the thrombus.

PREMATURE RUPTURE OF THE MEMBRANES AND PUERPERAL INFECTION

Basing his opinion on statistics gathered in the obstetric service of Professor Schickelé, Dr. Kreiss of Strasbourg holds that premature rupture of the membranes at term is not as serious as is commonly supposed, and that its influence on postpartum infection is slight.

This conclusion was vigorously opposed by several members of the congress. Professor Rivière of Bordeaux stated that, while it was possible that such results might be secured in well organized obstetric services in which the patients are under continuous supervision, it was out of the question in ordinary practice. Professor Bué of Lille pointed out that the important thing from the point of view of infection is not the greater or less degree of prematurity in the rupture of the membranes but rather the duration of labor itself, for the rupture of the membranes is frequently a cause of dystocia, owing to anomalies in the dilatation of the cervix. Dr. Hamm expressed regret that Kreiss did not include in his statistics the effect of rupture of the membranes on the fate of the infant. Bar expressed himself in a similar manner, holding that obstetrics has now reached a stage when the condition of the mother should not be the sole consideration; in judging of the value of any obstetric method, operative or technical, equal concern must be given to the fate of the child.

INFLUENZA AND PUERPERAL INFECTION

Dr. Vaudescal of Paris discussed the harmful effect of labor, whether at term or premature, on the course of the pulmonary complications of influenza. Septicemia without uterine localization is apt to occur. Vaudescal observed 12 per cent. mortality from the pulmonary complications alone, and 40 per cent. mortality when they were associated with childbirth. From these facts he concludes that pregnancy should never be interrupted in a woman suffering from influenza with pulmonary complications.

LONDON

(From Our Regular Correspondent)

Sept. 24, 1923.

The Outbreak of Smallpox

Since September 7, twelve cases of smallpox have occurred in various parts of London. The disease is not of the mild type observed in the Gloucester epidemic, as two deaths have already taken place. All contacts are being carefully watched, and every precaution is being taken to prevent the spread of the outbreak. Free vaccination is being offered to and urged on the public, a very necessary procedure because of the great neglect of vaccination. Though so far controlled, the outbreak is giving much anxiety to the public health authorities.

The Nation's Health

The report for 1922 of Sir George Newman, chief medical officer to the ministry of health, just published, is in many ways encouraging. He lays emphasis on the decline of infant mortality and of the birth rate. The latter has been sharp and represents "a fall of 6.8 per thousand persons living on the annual rate for 1901-1910." The infant mortality, of course, bears some relation to the birth rate, but its shrinkage cannot be entirely accounted for in this way. It is due in some measure to the intensive campaign in infant welfare and management of recent years. As to the causes of death and invalidity, there is given an interesting contrast founded on the figures of the registrar-general and of the national health insurance work. Table 1 shows the relation in order of importance between the diseases that kill and those that cause invalidity.

TABLE 1.—*Causes of Death in England and Wales, 1922*

Cause of Death. Per Thousand Deaths		Invalidity (among 30,000 insured persons), per thousand of total cases of invalidity in that group	
1. Respiratory disease	181	1. Respiratory disease	227.8
2. Heart diseases	157	2. Digestive system diseases.	131.2
3. Nervous system diseases	101	3. Lumbago rheumatism	87.6
4. Cancer	96	4. Influenza	85.3
5. Tuberculosis (all forms)	88	5. Injuries and accidents	79.0
6. Digestive system diseases	52	6. Abscesses, boils, etc.	68.9

It is noteworthy that, except for the respiratory diseases, the killing diseases are not important contributors to invalidity. The one black spot is the cancer mortality. The death rate from this disease is now more than seven times what it was in 1838. The question as to how far this increase is apparently due to better diagnosis and increased longevity is carefully discussed. The conclusion is that a portion, at least, of the increase is real. From 1838 to 1842 there were 173 deaths per million from cancer in England and Wales; 1847-1850, 274; 1876-1880, 494; 1890, 676; 1900, 829; 1910, 967; 1920, 1,161. There are some peculiar features in the increase. One is that it is much greater in men, as Table 2 shows:

TABLE 2.—*Increase of Cancer*

Men Age group:	Figure of 1851-1860 increased in 1920	Women Age group:	Figure of 1851-1860 increased in 1920
45-55	4 times	45-55	2 times
55-65	5 times	55-65	2½ times
65-75	5½ times	65-75	3 times
75 upwards	6 times	75 upwards	4 times

Of the six chief killing diseases given above, cancer is the only one that is definitely and uniformly increasing. Tuberculosis is steadily declining. The smallpox situation causes a good deal of anxiety. With so much infection and so little vaccination, why have we escaped an epidemic? The answer given is: 1. The virulence of the infection has apparently been less than in former years. 2. Many men have been protected by vaccination or revaccination in the army during the war, and many women have been protected by infant vaccination in the years when the practice was widespread. 3. The administrative control of cases and contacts has been greatly improved. 4. In the presence of the disease, vaccination has been practiced with uniformly successful results. A notable decline in typhoid fever has taken place, as shown by Table 3.

TABLE 3.—*Number of Notifications of Typhoid Fever Received for the Years 1911-1912*

1911	13,852	1917	4,601
1912	8,386	1918	4,306
1913	8,263	1919	3,447
1914	8,778	1920	3,109
1915	6,364	1921	3,835
1916	5,564	1922	2,414

Cancer and Diet

In spite of many suggestions from men of the highest eminence, the question of the causation of cancer makes no progress. In a letter to the *Times*, Sir Frederick Treves refers to many beliefs associating the disease with some particular diet, which have disturbed many homes and led to an alteration of the menu. The thesis of Dr. Copeman associating the suggestion that a restricted consumption of animal fats may at least modify the progress of the disease (THE JOURNAL, October 6, p. 1218) he regards as of a very different character, which deserves to be investigated. In the meantime, Sir Frederick ventures to point out that the increase of cancer in recent years has exactly coincided with the introduction of preserved food, such as cold storage supplies, tinned foods, concentrated foods, extracts and foods treated with preservatives. The coincidence may be accidental, but he regards it as the most conspicuous feature in relation to the present subject. Replying to Sir Frederick Treves, another correspondent points out in the *Times* that the death rate from cancer in Australia, where no chilled meat is consumed, has risen progressively from 74 per hundred thousand of the population in 1915 to 87 in 1921.

Chemicals in Food

In a letter to the *Times*, an analyst, Mr. Otto Hehner, calls attention to the profound change in our food supply that has occurred in the last fifty years. Formerly, it came more or less directly from the farm to the kitchen. Now a large portion of it passes through factories in which it is prepared, preserved and "beautified." This change has been accompanied by the introduction of a large number of insidious poisons. Their quantity in each article of food is so minute that obvious injury is out of the question, but they may have a cumulative effect in the course of years. For ages, wine and beer barrels have been sulphured to repress fungoid growth, a stupid process, but excusable while scientific knowledge did not exist. Now sulphites are regularly mixed with beer and other beverages, and are used to keep meat free from taint. Dried fruits, apricots, some tinned fruits and raisins are bleached with sulphurous acid. Sulphur is frequently accompanied with more or less arsenic, opening up further possibilities. Butter, cream, margarin, bacon and the many preparations into which bacon enters (such as sausages and meat pastes) contain boric acid or borax. This is limited by law in butter to 0.5 and in cream to 0.4 per cent. Chinese eggs, imported in bulk, contain up to 2 per cent.

boric acid and go into cakes and pastries. Temperance beverages, such as ginger beer and lime juice, frequently contain salicylic or benzoic acid. Margarin has been known to contain sodium fluorid. Chilled meat has been imported fumed with formaldehyd. Flour is bleached with nitrous gases. Every article of food preserved in a tin dissolves some of the metal, the quantity depending on the acidity of the material, the time of contact and the quality of the tin plate. Condensed milk takes up a mere trace; acid fruits, tangible amounts. The majority of organic acids used in food preparations, such as tartaric acid, citric acid and potassium bitartrate, contain traces of lead. Preserved peas, beans and spinach contain copper in the form of sulphate for "beautifying" purposes, from 1 to 4 grains to the pound. Rice for "beautification" is covered with French chalk. Flour is "improved" by the addition of acid phosphates, likely to contain a trace of arsenic. Last, but not least, comes arsenic. We live in the age of coal. All coal is arsenical. Hence, arsenic is ubiquitous. Every particle of coal dust or ashes, every tin tack and every metal cooking vessel is slightly arsenical. Few manufactured food ingredients are entirely free from it. The glass of bottles contains it and transmits it to some of their contents, whence it enters food. Recognizing the omnipresence of arsenic, the royal commission on arsenic poisoning limited the permissible quantity to 1/100 grain per pound in solid, and 1/100 grain per gallon in liquid, foods. Clearly we are being bombarded with poisons in minute quantity at every meal. All these facts have been represented by public analysts in reports that have been published at frequent intervals during many years, but without effect on our legislators. Mr. Hehner thinks that no other national question cries so urgently for remedy.

Sex Reversal

In the zoological section of the recent meeting of the British Association for the Advancement of Science, Dr. F. A. E. Crew reported a curious case of sex reversal in a vertebrate animal. He had collected more than fifty examples in the old female domestic fowl of some evidence of sex reversal. In some of these birds, after irregular molting, the plumage became gradually like that of the cock. In one case, a hen, aged 3½ years, ceased to lay. Her head furnishings became like those of a cockerel, although the plumage generally remained that of a hen, and she tried to crow. After another slow molt, she became like a cock in appearance, crowed vigorously, challenged males and showed the sexual appetite of a cock. She was seriously affected with tuberculosis, and with difficulty was nursed through the winter. In the spring she was mated with a virgin hen, some of whose unfertilized eggs were incubated to show their nature. She fertilized the hen, and chickens were reared from their union. As the tuberculous infection increased, she was killed. Extensive tuberculosis was found in every organ. In particular, the ovaries were completely destroyed. Under these conditions, as is already known to occur in fowls, new sexual cells invade the destroyed ovarian tissue from the peritoneum. These, at first neutral from the sexual side, assumed the character of male tissue, and a pair of male gonads was developed. Examination in other instances convinced Dr. Crew that when sex is reversed in fowls, the process begins with the destruction of the ovary by disease, and then its replacement by a new proliferation of gonadal tissue which gradually differentiates into male tissue. He suggested that sex in the fowl was determined at the time of fertilization, but that the females were heterogamic or bisexual in chromatic constitution, and that when some agency disturbed the factor normally deciding the development of the female side, then the male elements had their opportunity.

PRAGUE

(From Our Regular Correspondent)

Sept. 11, 1923.

Medical Periodical Literature

Recently, a meeting of the editors of the medical journals published in the Czech language was held in Prague. On this occasion, important questions pertaining to Czech scientific periodical literature were discussed. At present there are ten periodical medical journals being published in the Czech language, comprising periodicals for general practitioners as well as for special branches of medicine. One of the questions discussed at the meeting was the lack of interest on the part of foreign medical journals in the scientific publications that appear in the Czech language. The only exception is to be found in the German journals, which scan the literature closely and publish frequent summaries and abstracts from the Czech publications. It is only through the German medical press that the Czech papers are abstracted by French and English reviews, and they are then considered as German papers. Thus, Mendel's and Purkinje's discoveries are usually thought of as coming from Germany and not from the territory which now forms the Czechoslovak republic and in which is located the oldest university in central Europe—Prague.

The meeting expressed the unanimous opinion that the Czechs themselves were responsible for this because the Western nations could not be expected to learn the Czech language. Many of the Czech journals publish summaries at the end of the articles either in French or in English, but this does not accomplish much because it does not pay to subscribe for a journal because of the summaries alone. The Czech Academy of Sciences and Arts in Prague is preparing an annual publication to appear every year in French and in English. This will contain the summaries of achievements in all branches of science, and will be sent free to the important centers of education and research in the world. Nevertheless, the meeting felt that this measure of the Czech Academy would not quite remedy the situation, as the size of the publication will naturally be limited if all branches of science are represented. It would be quite expensive and hardly possible for financial reasons to create a special medical journal printed in either French or English for the papers coming from the Czech universities. Therefore it was proposed that steps be taken to combine the nations in central Europe which are cooperating now in political as well as economic problems for the publication of one or more scientific medical periodicals in those languages.

The second important question brought before the meeting was that of reporting in the Czech medical papers the progress of medical sciences in foreign countries. At present each periodical has in front a section for original articles, followed by accounts of foreign medical literature. Because there is no contact between the reporting physicians, it happens frequently that there appear two accounts of one foreign paper in two different periodicals, while many important papers are overlooked and do not come to the notice of the Czech medical profession. Each university maintains for each branch of medicine a reporting club directed by the professor. In spite of this there is no contact between the three medical faculties, and duplications are frequent.

Annual Meeting of Czechoslovak Physicians

Recently the annual meeting of the Central Union of the Czechoslovak Physicians was held in Karlsbad. On this occasion the thirty-fifth anniversary of the Central Union was celebrated. While originally the union comprised only the physicians coming from the territory of Bohemia, it was enlarged to the whole territory of the so-called Czech provinces—Moravia and Silesia—in 1893, and finally in 1918

Slovak physicians were also admitted. The union is organized on the basis of counties, which are the smallest units. There are thirty-three counties at present, with approximately 3,000 members of 3,500 Czechoslovak practicing physicians in the republic. The counties hold regular county meetings where not only scientific but also professional matters are being discussed. The central organization in Prague has sections for army physicians, dental surgeons, specialists and a very active committee called the Young Generation of the Czechoslovak Physicians. This committee has shown a great deal of interest in social and preventive medicine through its conferences devoted to kindred questions. The organization maintains also an intelligence bureau, a bank and a section for sickness insurance. At the annual meeting, the work of the union was summarized, and it was found that most of the points that the creators of the union put into its program thirty-five years ago have been realized. It was noted with great satisfaction that Dr. V. Janovsky, who was one of the chief creators of the union, was present at the meeting. The honorary membership of the union was conferred on him, on the state secretary of the ministry of health, Dr. J. Semerád, and on Dr. V. Rubeška. The meeting was followed by a trip to neighboring Czechoslovak watering places, which at last have resumed their prewar splendor.

BUENOS AIRES

(From Our Regular Correspondent)

Aug. 30, 1923.

National Health Department

Prof. G. Araoz Alfaro has been appointed president of the national board of health, a position he had filled temporarily under the previous administration. He has been given full powers to reorganize his department, for the purpose of securing greater efficiency.

At a conference last week for coordinating the activities of all federal and provincial health authorities, which was also attended by representatives of various scientific institutions, several resolutions were approved in regard to the control of tuberculosis, leprosy, drug addiction, venereal diseases and malaria. The most significant result of the meeting was the preparation of a bill designed to insure coordination between the several health agencies in the country. The views are endorsed by the government, and the bill has already been introduced in congress; it places all government asylums and hospitals, as well as the public assistance, under the interior department. This may be considered a step toward the creation of a public health department.

Insulin

Ever since the first reports from Toronto, in 1922, tests of the action of pancreas extracts on blood sugar have been made at the Laboratory of Physiology. The Argentine Medical Association suggested this subject for discussion at its annual congress on internal medicine. Dr. A. Sordelli has prepared a semipure insulin and a purified insulin, which have been studied experimentally. To check exploitation, to determine standards and to educate physicians in the use of the new drug, the national health department appointed a committee consisting of Profs. A. Sordelli, biochemistry; B. A. Houssay, physiology; M. R. Castex and P. Escudero, clinical medicine, and A. Bachmann, director of the bacteriologic laboratory of the national health department.

University Conditions

Since the intervention of the national authorities, a period of order and progress has followed at the University of Cordoba. A similar change has taken place in the University del Litoral, especially in the medical school, which is ably supervised by the dean, Dr. R. Araya. This school has shown enormous expansion within a short time; the number of students is already too large, more than 300 having been enrolled in the freshman class. Recently, the directing board adopted a resolution to the effect that professors must reside at Rosario. A number of the members of the teaching staff lived in Buenos Aires and spent only a few hours at Rosario, 180 miles away. Some professors resigned, and others have practically left or given up their contracts. Dr. O. Pico has been engaged to head the laboratory of physiology, which was sadly neglected by the former incumbent.

At Buenos Aires, discipline and stability are not yet fully established. The majority of professors ask for full control of school affairs, with the complete exclusion of interference by the students, who are notoriously inexperienced and liable to political manipulation. However, the superior board is under heavy pressure from the students, who have even expressed a desire to increase their present elective powers. Should their requests be granted, the university will certainly be sadly hampered.

Prominent Visitors

Professor Lustig of Florence is now in Buenos Aires.——Dr. G. E. Lafora of Madrid has completed two series of lectures, one on neurology and psychiatry and the other on psychanalysis.——Prof. S. Recasens, dean of the Madrid Medical School, has come especially to invite Argentine physicians to attend the medical congress to be held at Seville in 1924. While here, he gave an interesting lecture on radiotherapy in gynecology.——Prof. H. Roger, dean of the Paris Medical School, will arrive today to give a series of lectures. ——Professor Weygandt, the Hamburg psychiatrist, is now in this city.

Deaths

Prof. J. Sisto, one of the most active pediatricians in this country and discoverer of Sisto's sign (continuous crying of infants with heredosyphilis), has died.——Dr. Francisco Soler of Parana, the oldest physician in this country, died recently.

Marriages

KENT WOOD JARVIS, Oswego, N. Y., to Miss Frances Bernadette Hannon of New York, October 2.

EUGENE CUSHMAN WYLIE, Boston, to Miss Norma Katherine McKelvie of Rochester, N. Y., October 1.

WILLIAM PATTON WOOD, Knoxville, Tenn., to Miss Mayme Parrott of Strawberry Plains, August 28.

ROBERT LINCOLN GOODALE, Boston, to Miss Susan Bainbridge Sturgis of Groton, Mass., September 29.

LINCOLN MOSES SAULPAUGH, New York, to Miss Ida L. Hunt of East Orange, N. J., July 5.

CLARENCE FRANK GUNSAULAS BROWN to Miss Marjorie Mitchell, both of Chicago, October 3.

JOHN J. GILBRIDE, Philadelphia, to Miss Claire H. Keane of Hartford, Conn., September 10.

JOHN JOSEPH DEACY, Lawrence, Mass., to Miss Margaret Breen of Methuen, September 18.

RUSSELL L. CECIL to Miss Eileen Gladstone Cumming, both of New York, September 26.

STUART WILSON EGERTON to Miss Katherine B. Lalor, both of Baltimore, September 25.

MUIR BRADBURN to Miss Helen Donald Watson, both of New Orleans, October 10.

W. B. LEWIS, Kamrar, Iowa, to DR. EFFIE FAYE CASHATT of Coon Rapids, July 15.

SAMUEL PLAHNER to Mrs. Naomi Wilson Manlove, both of Milwaukee, August 24.

GEORGE KESKEY, Kenosha, Wis., to Miss Stella Blackmore of Ely, Minn., July 31.

LAILA ANN COSTON to Mr. Lewis C. Conner, both of New York, September 27.

Deaths

Edward William Buckley ✠ St. Paul; Medical Department of Columbia College, New York, 1888; past president of the Ramsey County Medical Society; made Chevalier of the Legion of Honor by the French government, during the World War; on the staff of St. Joseph's Hospital, where he died, September 26, aged 63, following a long illness.

John Charles Mackenzie, Cincinnati; Medical College of Ohio, Cincinnati, 1865; emeritus professor of clinical medicine; for many years secretary of the faculty of the University of Cincinnati College of Medicine and on the staff and at one time superintendent of the Cincinnati General Hospital; aged 81; died, September 19.

Oscar Teague, Pittsburgh; University of Berlin, Germany, 1903; member of the American Association of Pathologists and Bacteriologists, the New York Pathological Society, and the Society of American Bacteriologists; aged 48; was killed in an automobile accident, September 29, near Vineland, N. Y.

William Van Metre Taylor, McKeesport, Pa.; Jefferson Medical College of Philadelphia, 1873; member of the Medical Association of the State of Pennsylvania; formerly on the staff of the McKeesport Hospital, and member of the board of health; aged 74; died, September 23, of uremia.

James Robert Gillespie ✠ Dayton, Tenn.; Vanderbilt University Medical Department, Nashville, 1890; Bellevue Medical College, New York, 1891; past president of the Rhea County Medical Society; at one time county physician; aged 55; died, August 26, following a long illness.

Thomas Z. Jones ✠ Waterville, N. Y.; Bellevue Hospital Medical College, New York, 1883; past president of the Oneida County Medical Society; formerly on the staff of the Osawatomie (Kan.) State Hospital; aged 63; died suddenly, June 12, in Albany, of angina pectoris.

Charles Clark Fowler, Hendersonville, Tenn.; Vanderbilt University Medical Department, Nashville, 1915; member of the Tennessee State Medical Association, and president of the Sumner County Medical Society; aged 33; died, September 19, following an appendectomy.

Julius William Weinstein, New York; Columbia University College of Physicians and Surgeons, New York, 1900; formerly on the staffs of the Mount Sinai Hospital, New York, and the Zion Hospital, Brooklyn; aged 50; was found drowned in the Hudson River, September 10.

George Wendling Hay, Washington, Iowa; State University of Iowa College of Medicine, Iowa City, 1894; member of the Iowa State Medical Society; past president of the Washington County Medical Society; aged 61; died suddenly, September 29, of heart disease.

Charles H. Towlerton ✠ Lyons, N. Y.; Medical Department of the University of the City of New York, 1889; formerly on the staff of the Bellevue Hospital, New York; proprietor of the Lyons Hospital; aged 58; died, September 14, of carcinoma of the throat.

Carl Von Neupert, Sr., Stevens Point, Wis.; University of Würzburg, Germany, 1865; member of the State Medical Society of Wisconsin; formerly city physician; veteran of the Franco-Prussian War; aged 83; died, September 23, of heart disease.

Patrick D. Riordan, New York; New York Homeopathic Medical College and Hospital, 1898; formerly on the staff of the Flower Hospital; for several years county coroner; aged 58; died, September 21, of heart disease.

Barnard Shipp Holt, Duncan, Miss.; University of Louisville (Ky.) Medical Department, 1910; member of the Mississippi State Medical Association; aged 36; was found dead in bed, September 7, of heart disease.

Joseph Franklin Daugherty, Walton, Ky.; Kentucky School of Medicine, Louisville, 1891; member of the Kentucky State Medical Association; aged 57; died recently, of chronic nephritis, at a hospital in Cincinnati.

Larry Richard Gale ✠ Newport, Ohio; University of Cincinnati College of Medicine, 1915; served in the M. C., U. S. Army, during the World War; aged 32; died, September 23, of ulcerative endocarditis.

Charles Edward Lindeman ✠ Pittsburgh; University of Pennsylvania School of Medicine, Philadelphia, 1899; served in the M. C., U. S. Army, during the World War; aged 53; died, September 17.

Henry Maurice Leach ✠ Saginaw, Mich.; Bellevue Hospital Medical College, New York, 1879; aged 70; died, September 21, of septicemia, contracted while performing an operation.

Arthur E. Lawrence, Pomeroy, Ohio; Columbus Medical College, 1890; member of the Ohio State Medical Association; aged 55; died suddenly, September 17, while attending a patient.

Edgar Ames Stoneman, Springfield, Mass.; Starling Medical College, Columbus, Ohio, 1891; aged 55; died, September 18, at the Springfield Hospital, of heart disease, following an operation.

Friend L. Hall, Erie, Pa.; Medical Department of Western Reserve University, Cleveland, 1882; member of the Medical Society of the State of Pennsylvania; aged 68; died recently.

Simon DeJager, Paterson, N. J.; University of Leyden, Netherlands, 1879; member of the Medical Society of New Jersey; formerly city health officer; aged 67; died, August 29.

William L. Hudson, Luray, Va.; Louisville (Ky.) Medical College, 1874; member of the Medical Society of Virginia; aged 72; died suddenly, September 17, of cerebral hemorrhage.

Guido Ranniger, Oscuro, N. M.; Rush Medical College, Chicago, 1890; aged 69; died, August 17, at the Masonic Hospital, El Paso, following an operation on the gallbladder.

John Wesley Robinson, Guide Rock, Neb.; State University of Iowa College of Medicine, Iowa City, 1884; also a druggist; aged 71; died, September 18, of carcinoma of the face.

Rurie Oliver Lacey, Elizabethtown, Ill.; Eclectic Medical Institute, Cincinnati, 1887; member of the Illinois State Medical Society; aged 58; died, August 25, of carcinoma.

Hugh Marshall Barnes ✠ Colony, Kan.; University Medical College of Kansas City, Mo., 1899; aged 46; died, August 30, at Rochester, Minn., of heart disease.

Ralph Crable Smith, Alpena, Mich.; Detroit College of Medicine and Surgery, 1904; formerly city health officer; aged 56; died, September 14, of carcinoma.

William Henry Harpe, Cussetta, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1889; aged 65; died, September 10, of cerebral hemorrhage.

Elbridge H. Gerry, Shrewsbury, Pa.; University of Maryland School of Medicine, Baltimore, 1867; aged 86; died, September 14, of cerebral hemorrhage.

Howard M. Hamblin, Washington, D. C.; American Medical College, St. Louis, 1875; aged 76; was found dead, September 12, of accidental asphyxiation.

Samuel M. Worley, St. Augustine, Fla.; Chattanooga (Tenn.) Medical College, 1902; aged 45; died, September 12, in a sanatorium at Asheville, N. C.

Robert Patrick Fair ✠ Boston; Medical School of Harvard University, 1900; formerly on the staff of the Carney Hospital; aged 53; died, September 15.

Sparrow A. Snow ✠ North Branch, Mich.; University of Michigan Medical School, Ann Arbor, 1872; aged 75; died, September 15, of pneumonia.

William Alfred Barmore ✠ San Francisco; Medical College of Ohio, Cincinnati, 1891; aged 53; died, September 26, of cerebral hemorrhage.

James R. Paine, Pembroke, Ky.; University of Nashville (Tenn.) Medical Department, 1872; aged 77; died, September 18, of heart disease.

John Ross Cogswell, Warner, N. H.; Dartmouth Medical School, Hanover, 1865; aged 83; died, September 17, of cerebral hemorrhage.

Joseph Francis Kozlowski ✠ Chicago; Harvey Medical College, Chicago, 1901; aged 53; died suddenly, October 2, of myocarditis.

Addison K. Ross, Parkersburg, W. Va.; College of Physicians and Surgeons, Baltimore, 1885; aged 70; died, September 13.

James Ferrier, New York; Trinity Medical College, Toronto, Ont., Canada, 1881; aged 71; died, September 16.

Levi Joseph Jenkins, Whitney, Fla.; Tennessee Medical College, Knoxville, 1893; aged 59; died recently.

Correction.—The September number of the *California State Journal of Medicine* announced the death of Dr. John William Peck in Berkeley, and THE JOURNAL published an obituary notice, September 29. We have since learned it was Dr. Albert P. Peck of Berkeley who died, not Dr. John W. Peck.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

THE OPTICAL THEORIES OF W. H. BATES

"Throw Away Your Glasses" and Buy My Book

W. H. Bates, M.D., of New York City has been urging for some time that people with errors of refraction "throw away their glasses" and purchase his book "Perfect Sight Without Glasses," price $5.00. This book, we are told, "demonstrates that all persons wearing glasses are curable without them." Until recently, Dr. Bates' advertising efforts, while somewhat extensive, have not been of such a nature as to warrant much attention being paid to his activities in this line. However, a recent issue of a popular magazine of wide circulation contains an article by Dr. Bates promulgating his weird theories. Going to the public under such respectable auspices as this, the propaganda and preposterous theories of Dr. Bates assume an importance out of all proportion to their scientific value.

The sum and substance of the Bates' theory seem to be that any person suffering from errors of refraction may train his eyes to perfect vision by performing certain ocular exercises and exposing his eye to intense light. This hypothesis is not only unsupported by, but is very definitely opposed to, the accumulated evidence of the science of ophthalmology.

When a physician promulgates theories that are unsupported by scientific evidence and opposed to the accumulated knowledge of experts in its particular field, and especially when he commercializes such theories it is proper to inquire into his professional antecedents.

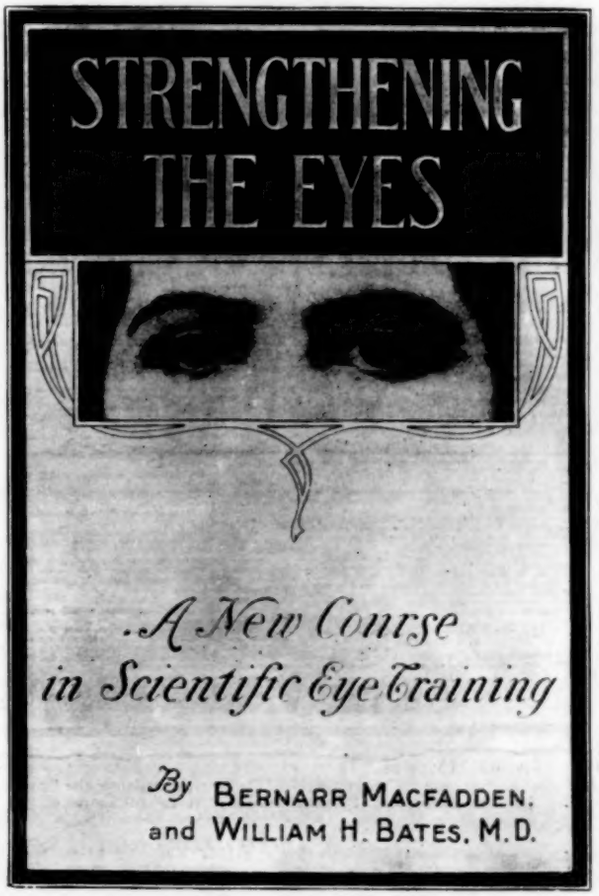
According to information on file, William Horatio Bates was born in Newark, N. J., in 1860; was graduated in 1885 by Columbia University, College of Physicians and Surgeons; was licensed in New York the same year and in North Dakota in 1903. Newspaper clippings record that in August, 1903, Dr. Bates mysteriously disappeared from New York City. Two months later he was discovered in London, England, "acting as an assistant in a hospital." He is alleged to have given two explanations of his disappearance. One was that he had been called to perform an operation on a sailor and that, while doing this, the ship in which the sick man lay sailed away. The other explanation was that he had left New York "while suffering from an acute case of aphasia" (amnesia?). Two days after being found in London he again disappeared and his name did not appear in the newspapers for nearly nine years. Then, in May, 1911, the New York papers reported that one of Dr. Bates' old friends had "found him quite accidentally in Grand Forks, N. D." and had persuaded him to return to New York. While the newspaper accounts give the impression that Dr. Bates' whereabouts from 1903 till 1911 were unknown, the medical directories show that Dr. Bates was in Grand Forks from 1904 to 1910 inclusive. He seems to have been a member of the local medical society during most of that time. Dr. Bates has been a member of the Medical Society of the County of New York for some years and, through this, has qualified as a Fellow of the American Medical Association.

Dr. Bates' bizarre claims and methods regarding refraction began to be brought to the attention of THE JOURNAL in 1913 when letters from laymen were received asking about his special "treatment for poor eyesight." In 1917 Bernarr Macfadden, the "physical culture" faddist, collaborated with Dr. Bates in turning out what was heralded as "A New Course of Eye Training." This was heavily advertised in *Physical Culture*, a sheet whose advertising pages have reeked with medical and quasi-medical freaks, fads or fakes. In addition, the public was circularized by *Physical Culture* urging it to purchase this "course." Later, for some reason, Dr. Bates' name was dropped from the advertising but Macfadden and *Physical Culture* continued to feature the course. The title was changed to "Strengthening the Eyes." This is described as "Prepared by Bernarr Macfadden in Collaboration with one of the World's Leading Eye Specialists."

In July, 1919, Bates began publishing *Better Eyesight*, "A Monthly Magazine Devoted to the Prevention and Cure of Imperfect Sight Without Glasses." This is essentially an advertising house-organ for Dr. Bates. It is not admitted to second-class rates. While the publication purports to be sold at 20 cents a copy or $2.00 a year, the thing is, apparently, sent out broadcast without charge.

Some of the material in *Better Eyesight* reads as though it were the product of a psychopathic ward. As an example of Dr. Bates' lucid style, we quote the following from the first issue:

"When he [the patient] comes to realize, through actual demonstration of the fact, that he does not see best where he is looking, and that when he looks a sufficient distance away from a point he can see it worse than when he looks directly at it, he becomes able, in some way, to reduce the distance to which he has to look in order to see worse, until he can look directly at the top of a small letter and see the bottom worse, or look at the bottom and see the top worse."



Cover of an advertising booklet widely circulated by the Physical Culture Publishing Company in an attempt to sell to the public an alleged course in strengthening the eyes.

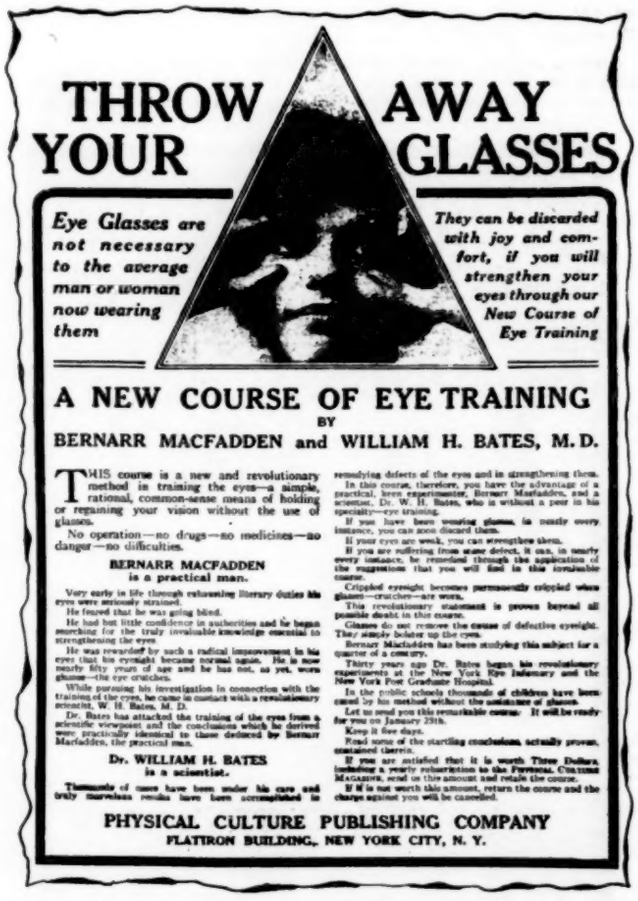
Could anything be plainer? But errors of refraction, it seems, are not the only conditions that Dr. Bates' methods will cure. At the time of the influenza pandemic *Better Eyesight* featured an alleged "quick cure" for influenza. Thus we read:

"When one palms perfectly, shifts easily, or has a perfect universal swing, not only the muscles which control the refraction, but the muscles of the arteries which control the circulation of the eyes, nose, lungs, kidneys, etc., are relaxed, and all symptoms of influenza disappear. The nasal discharge ceases as if by magic, the cough is at once relieved, and if the nose has been closed, it opens. Pain, fatigue, fever and chilliness are also relieved. The truth of these statements has been repeatedly demonstrated. The Editor is very proud of this discovery which is now published for the first time."

These are but specimens of what may be found in almost any issue of *Better Eyesight*. Many issues contain testimonials from alleged cured patients.

Dr. Bates seems to be an active member of that egregious organization, the "Allied Medical Associations," a concern that caters to physicians who live and move in the twilight zone of professionalism. In 1920 his name appears as fourth vice-president of the "Allied Medical Associations" and in 1921 he read a paper before the organization—and, of course, received the necessary newspaper publicity.

In closing, we cannot do better than quote from an editorial on Dr. Bates' theory that appeared in the *American Journal of Ophthalmology* more than three years ago under the title


THROW AWAY YOUR GLASSES
Eye Glasses are not necessary to the average man or woman now wearing them
They can be discarded with joy and comfort, if you will strengthen your eyes through our New Course of Eye Training
A NEW COURSE OF EYE TRAINING
BY
BERNARR MACFADDEN and WILLIAM H. BATES, M. D.
THIS course is a new and revolutionary method in training the eyes—a simple, rational, common-sense means of holding or regaining your vision without the use of glasses.
No operation—no drugs—no medicines—no danger—no difficulties.
BERNARR MACFADDEN is a practical man.
Dr. WILLIAM H. BATES is a scientist.
PHYSICAL CULTURE PUBLISHING COMPANY
FLATIRON BUILDING, NEW YORK CITY, N. Y.

A typical advertisement from *Physical Culture* advertising the "course" prepared by Dr. Bates and Bernarr Macfadden in collaboration.

"Science Versus Sensationalism." After calling attention to the fallacy of Dr. Bates' theories and the entire lack of scientific evidence for them, that journal said:

"Of course this hypothesis takes its sensational value from the fact that a great many people do not like to wear glasses. Thousands that are wearing them would like to discard them, and tens of thousands who do not wear them prefer to strain their eyes rather than give the needed assistance to their focusing powers. Such people would welcome any 'system' that would enable them to get along without glasses, as they would welcome any system that enabled them to live without paying for what they eat or wear."

Value of Diet and Rest in Tuberculosis.—Well regulated life in the open and a well balanced diet are yeoman aids to rest in the general treatment of tuberculosis. Moving, fresh air stimulates bodily functions and good nutrition improves them. Exposure to the wearing and damaging influences of weather and climate will likely prove disastrous, while forced stuffing with milk and eggs, beyond the demands of appetite and satisfactory gains in weight on more normal diet, delays rather than hastens cure.—A. K. Krause: Rest and Other Things, p. 15.

Correspondence

CONDITIONS IN THE INDIAN MEDICAL SERVICE

To the Editor:—The Bureau of Indian Affairs has recently sent out a call for more physicians for the Indian Medical Service. These calls come with considerable frequency, as there is a chronic shortage of capable men in this branch of government service, the reasons therefor being well known to those who are conversant with Indian Bureau conditions and practices as they relate to medical matters.

It seems to me only fair that physicians who may be considering the question of entering the Indian Service should know beforehand what they are going up against, and why it is that there is so much difficulty in getting and keeping good men in it. The Public Health Service, Army and Navy, etc., have no trouble in obtaining all the trained medical men they require, whereas in the Indian Medical Service we find the converse to be true, so that the Indian Bureau even takes medical students of the final year in order to be able to carry on at all.

When a man takes the civil service examination for physician, and is assigned to duty on some reservation, he naturally thinks that his position gives him full power to do what his professional training and experience shows to be called for in the treatment of his cases. Far too often, however, he is brought up with a sharp turn, and made to realize that this is not the fact, but that he is subject in all things to the will of the superintendent or agent in charge of the reservation, and that his authority is little better than nominal, even when the matters at issue are of a purely medical nature. If he happens to be stationed at a school, he learns that the agent has the power to delegate his arbitrary authority to the principal of the school, so that the latter can override the physician's recommendations as to the disposition of cases, and even go so far as to disregard or set aside his diagnosis! Needless to state, such a condition of affairs is extremely humiliating to a trained physician, but it is a logical result of the retention in Indian matters of the antiquated system that gave the agent czarlike powers in his own jurisdiction. Thirty or forty years ago there might have been some excuse for endowing this official with a great deal of authority: At that time most of the reservations were remote from civilization, settlements were few and far between, and hostile Indians had to be dealt with. Consequently, the agent had to have full control in order to meet any emergencies that arose. In the present day and age, however, such a system is an anachronism—the Indian is peaceable, and the Indian problem is no longer a military one, but a business proposition, pure and simple, and should be universally recognized as such and dealt with accordingly. Owing to the rapid increase in population of the Western states, in which the vast majority of the Indians live, and more rapid means of communication with other parts of the country, there is much more travel, so that diseases are spread more rapidly than was the case in the early days, and the Indian has suffered accordingly, acquiring diseases that were almost unknown to him before he came in contact with the white man. As a result of all this, a large part of the Indian problem is of a medical nature, and this will be more and more the case as time goes on; but as long as the Indian service physician is so restricted, sanitary and health conditions among the government's wards will be no better than they were a generation ago; in fact, they will become increasingly worse.

Another disagreeable feature that the newly appointed physician will encounter is that he is required to report all cases of sickness to his superintendent—this applies to the

white employees as well as to the Indians. So we often find that the patient's illness becomes public property and plentiful food for the evil-minded gossip, making some reservations a veritable little hell on earth. It doesn't need to be said that a physician endowed with gentlemanly instincts finds such a condition of affairs intolerable, so that he resigns just as soon as a good opportunity presents itself to get into another service where he is able to retain some degree of self-respect. All this, of course, is detrimental to the Indian's interests; the constant shifting and changing around of the Indian Medical Service man results in leaving all sanitary matters in an unsettled state.

Although the Indian physician receives a beggarly salary of only $1,200 a year, plus a bonus of $20 a month for the present, he learns that any outside work he may have a chance to pick up is largely according to the will of the superintendent, many of these officials delighting in showing their power by requiring the physician to account for almost every minute he is off the reservation. At many agencies, too, it is the custom to assign the poorest car to the physician, and he is expected to look after it and keep it in repair himself and then he finds very frequently that the use of the machine has to be shared with other employees, all of which means annoyance and delay in carrying on his work. A friend of mine had an automobile that had been in use for eight years allotted to him, and considered himself lucky in having even that much doled out by the powers that be. If the Indian physician examines an applicant for a government pension, he is expected to do the work for nothing, the excuse being that he receives a salary from the Indian Bureau, and that therefore he is not entitled to his examination fee from the Pension Bureau. At the same time, the agent or some employee under him may be postmaster, getting a tidy little sum each month out of the job—that is all right, though; the physician has no rights that any one need trouble to respect, only those that the agent may permit him.

There are certain printed rules that define more or less vaguely the physician's status, and from time to time circulars are sent out from the office at Washington, and when a man reads them he imagines that he is given considerable power in his line of duty. It isn't long, though, until the physician has the fact impressed on him that in actual practice the agent can alter or disregard practically every one of these regulations, and, if he objects, the agent always has a club to use on him, owing to the fact that he makes out the physician's efficiency report; so that at any time the agent can send in a report, or have this done by one of the numerous traveling supervisors or inspectors in the service, and the M.D. receives a peremptory note or telegram from bureau headquarters either "firing" him, suspending him without pay, or transferring him to some undesirable post in a distant state. Of course, the physician may ask for an investigation, but he quickly finds out that he is under almost insurmountable handicaps when he starts anything of this nature: Every employee is responsible to either the superintendent or the school principal, as the case may be, these officials making their efficiency reports, so that the employee has to give his testimony in line with the agent's will or be in danger of "getting it in the neck." This applies to the nurse as well, placing her between two fires, since she is not responsible to the physician at all, when it comes to rating her efficiency; consequently, she may obey the orders of the doctor or disregard them, just as she pleases, knowing that she is safe just as long as she has a stand in with the agent.

The disabilities I have mentioned heretofore are only a few of the ones that the Indian physician labors under. But they are plenty, and it is nothing more than a square deal to let any man contemplating going into the Indian Medical Service know beforehand something of the life he will lead. If he feels willing to take his chances under the conditions revealed, then he will have nobody to accuse of misrepresenting things later on. But, even if he is fortunate enough to obtain a billet where the agent is a man broad-minded enough to recognize that the physician should be supported in his endeavors in behalf of the health of his charges, and not be interfered with at every turn over petty points of authority, in such a case he will always have the knowledge that at any time conditions may reverse themselves—he is never really his own master. Should the physician find and report too much sickness, say numerous cases of tuberculosis or trachoma, so that there is an apparent reflection on the sanitary state of the reservation, right then trouble starts, as there are far too many officers in charge of Indian reservations who are more interested in fine paper records for themselves than they are in the health and safety of those supposed to be in their care.

I have learned these facts either through what I have seen personally on Indian reservations, or through friends in that service, and it has been my endeavor to be as conservative as possible in my statements. There is certainly an urgent need for radical changes and improvements in Indian Medical Service matters, and we have a splendid opportunity to get reforms effected in this department of governmental activities by having a man like Dr. Hubert Work at the head of the Department of the Interior, which contains the Bureau of Indian Affairs. It is believed that he is in thorough sympathy with any efforts to give the Indian physician a better status, and one that would free him from the present handicap of lay control, and we should, as medical men interested in the advancement of our profession, back him up in attaining these desired ends.

J. HERBERT DAREY, M.D., Sioux City, Iowa.

"CAUSATIVE FACTORS AND TREATMENT OF CHRONIC EMPYEMA"

To the Editor:—In my article in THE JOURNAL Sept. 22, 1923, page 999, on "Causative Factors and Treatment of Chronic Empyema," it is stated that "sodium hypochlorite solution" was employed. The solution employed was "Surgical Solution of Chlorinated Soda N. N. R." (Solution Chlorinated Soda, Carrel-Dakin). It was prepared by diluting "Hyclorite" with seven volumes (7 to 1) of water. The strongly alkaline solution of chlorinated soda U. S. P. is too irritating for the purposes I described.

CARL A. HEDBLOM, M.D., Rochester, Minn.

PRIORITY IN DISCOVERY OF A SUBSTANCE DERIVED FROM THE PANCREAS, ACTIVE IN CARBOHYDRATE METABOLISM

To the Editor:—Since insulin has become a clinical success there seems to be a certain amount of discussion as to priority. Naturally, I have been interested in following this discussion, though I had no intention of partaking in it until pressed by some of my acquaintances, and I now do so with reluctance.

During the spring and summer of 1911, while working in the laboratories of biochemistry and physiology of the University of Chicago, I developed a method for extracting a substance from the pancreas which is active in carbohydrate metabolism. The method of preparing the extract, together with an account of some of its physiologic effects, was published in the *American Journal of Physiology* (**29**:306 [Jan.] 1912).

In the *Journal of Laboratory and Clinical Medicine* (**7**:467 [May] 1922), Banting and Best state that "the principle upon which this latter extract depends is the same as that of E. L. Scott and the favorable results led us to see whether adult pancreas could be used in place of fetal. Six c.c. of *whole*

gland extract prepared as above were therefore injected daily from December 8 to January 3 inclusive." (The italics are mine.) This, I believe, is the first extract of a whole normal adult pancreas reported by Dr. Banting or his co-workers as having been used in their work, and constitutes the first repetition of my own work, reported in 1911, which is recorded in the literature. The test to which Banting and Best put the extract was much more severe than any that I made, but the favorable outcome indicates clearly that the discovery of the curative power of "insulin" has been open from January, 1912, to any one who cared to repeat and extend my work. This it remained for Dr. Banting to do, and the credit for this extension is clearly due to him.

In spite of simplification and the rather severe modification to which the process has been subjected for purposes of quantity production, it seems that priority of isolation and in the development of the fundamental principles involved in extraction clearly belong to the work reported from the laboratories of the University of Chicago. On the other hand, the present method of final purification by precipitation at the iso-electric point is an addition to the older method, which, though perhaps of extreme importance in obtaining a safe and uniform product for clinical use, is not necessary for obtaining the active principle, as is shown by the experiment of Banting and Best cited above.

I wish again to emphasize that it is no part of my intention to withdraw any of the credit from Dr. Banting and his co-workers for the work they have done in extending our knowledge of the physiologic and therapeutic properties of insulin. I wish also to point out that in the papers which have been published by him and by Professor MacLeod, full credit has been given to my work. It is only because it has come to my attention that others are attempting to claim priority for the principles involved in making the extract that I call attention to the papers cited in this note.

ERNEST L. SCOTT, PH.D., New York.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

WIDAL REACTION

To the Editor:—Is the Widal reaction positive in malarial fever? In what conditions other than typhoid is the Widal reaction positive?

L. C. B., Arkansas.

ANSWER.—A typical positive reaction—marked clumping with complete loss of motility in one hour at a dilution of 1:50—is practically never due to any other disease than typhoid, if the test is properly performed. However, a positive Widal reaction is not infrequently found in cases of jaundice in which no specific disease is clinically evident. It is certain, says Webster, that most, if not all, of these cases of jaundice are secondary to a typhoid cholecystitis with its accompanying sequelae. These patients may have an "ambulatory" typhoid, or they may have no clinical signs other than a positive Widal reaction. Positive reactions also are undoubtedly seen in which the infection is due to the paratyphoid bacillus, and in which agglutination of the typhoid bacillus shows stronger than the paratyphoid bacillus; on the other hand, cases of true typhoid fever may show a stronger reaction with *Bacillus paratyphosus* than with *Bacillus typhosus*. However, the paratyphoid bacillus, according to Lentz, is agglutinated more quickly by paratyphoid serum than is the typhoid bacillus by typhoid serum. Aside from these considerations, and of cases in which the patients have recently recovered from typhoid fever or have recently been vaccinated against typhoid fever, a positive Widal reaction indicates infection with *Bacillus typhosus* in practically all cases.

RESPONSIBILITY OF THE HOSPITAL FOR MALPRACTICE

To the Editor:—To what extent can a city hospital or any other hospital be held legally responsible for the death of any patient in that hospital due to any form of malpractice on the part of the attending physician? Can such a hospital be sued for any malpractice on the part of an attending physician of his patient in the hospital which might result in death or disability of the patient, in Ohio or in any other state in the union? Please omit name. ———, M. D., Ohio.

ANSWER.—The rule is succinctly stated by Brother's (Medical Jurisprudence, 1914, page 274) as follows: "Where due care is used in the selection of its employees, a private charitable hospital, conducted for benevolent and philanthropic purposes, is not responsible to a patient for damage received through the unskilfulness or carelessness of servants, attendants or physicians in charge, even though the patient paid for the services given. . . . A city, county or state does not possess power to operate a hospital for revenue and, therefore, cannot be made liable for the negligence of persons employed about the hospital, even though the authorities are unlawfully conducting the institution for revenue. Where the hospital is a private institution and conducted for profit, the institution is liable for such negligence." The rule thus laid down is only a general guide. It is subject to variations in our different jurisdictions. For information as to such variations, reference should be made to the statutes and decisions of the several states.

PEMPHIGUS VEGETANS

To the Editor:—Kindly give me the etiology, pathology and treatment of pemphigus vegetans. I am treating an acute case in a woman, aged 45, so far without success. ———, M.D.

ANSWER.—The etiology of pemphigus vegetans is not known. *Bacillus pyocyaneus* has been recovered in some cases in pure culture, but it is possible that this infection only produces the vegetations which constitute the difference between this disease and pemphigus vulgaris. Eberson (*Arch. Dermat. & Syph.* **8**:204 [Aug.] 1923) has recently described a gram-positive anaerobic organism recovered from the blood of seven patients suffering with chronic pemphigus.

The histologic picture of pemphigus vulgaris presents a dilatation of the blood and lymph vessels and cellular infiltration of the upper corium, while the papillae are greatly hypertrophied and acanthosis is present in the epidermis.

Treatment is unsatisfactory. The disease usually pursues a slow course, but usually ends fatally. The general health of the patient should receive attention, and various drugs, as iron, quinin, strychnin and arsenic, are at times of service. Of these arsenic, used in the form of solution of potassium arsenite (Fowler's solution), sodium cacodylate or neoarsphenamin, seems most useful.

CYCLIC, OR PERIODIC, VOMITING

To the Editor:—What is the relationship between toxemia and chronic vomiting in childhood? Is it probable that in many cases an error in diet is only the exciting cause, while the toxemia from diseased tonsils, a diseased appendix, a pyelitis or some other source of infection is the real or basal cause? Can you refer me to some recent literature dealing with the causes of vomiting in childhood? Of course, I have the current medical books in pediatrics.

N. THOMAS ENNETT, M.D., Richmond, Va.

ANSWER.—It is presumed that our correspondent means the toxemia and chronic vomiting commonly known as cyclic, or periodic, vomiting. This general symptom complex unquestionably is often associated with focal infections, especially infections of the tonsils. This association is proved by the fact that when the focus of infection is removed, the attacks of vomiting cease. So far as we know, there has not recently been any literature on the causes of this type of vomiting. Owing to the fact that, often after the vomiting starts, large quantities of acetone and diacetic acid appear in the urine, the condition has been called by some writers an acidosis. There yet is lacking proof that the acidosis is primary.

HEMATIMETERS

To the Editor:—Is the Thoma-Zeiss hematimeter as accurate as other hematimeters? HERMAN CASTILE, M.D., Foreman, Ark.

ANSWER.—Yes. However, the Zappert and the Turck modifications of the Thoma-Zeiss counting chamber are more advantageous in counting leukocytes, in that they permit counting a larger number over a larger ruled area.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ARKANSAS: Little Rock, November 13-14. Sec., Dr. J. W. Walker, Fayetteville.

CALIFORNIA: Sacramento, October 15-18. Sec., Dr. Charles B. Pinkham, 906 Forum Bldg., Sacramento.

CONNECTICUT: New Haven, November 13-14. Sec. Eclec. Bd., Dr. James E. Hair, 730 State St., Bridgeport.

MAINE: Portland, November 13-14. Sec., Dr. Adam P. Leighton, Jr., 192 State Street, Portland.

NEBRASKA: Lincoln, November 6-8. Supt., J. D. Case, Lincoln.

NEVADA: Carson City, November 5. Sec., Dr. Simeon L. Lee, Carson City.

NEW JERSEY: Trenton, October 16-17. Sec., Dr. Alexander MacAlister, State House, Trenton.

SOUTH CAROLINA: Columbia, November 2. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.

TEXAS: Dallas, November 20-22. Sec., Dr. T. J. Crowe, Dallas County Bank Bldg., Dallas.

WEST VIRGINIA: Charleston, October 23. Sec., Dr. W. T. Henshaw, Frankenberger Bldg., Charleston.

New York May Examination

Mr. Herbert J. Hamilton, assistant professional examiner, Board of Medical Examiners of the State of New York, reports the written examination held at Albany, Buffalo, New York and Syracuse, May 21-24, 1923. The examination covered 8 subjects and included 80 questions. An average of 75 per cent. was required to pass. Of the 58 candidates examined, 32 passed and 26 failed. Twenty-one candidates were licensed by endorsement of credentials, and five candidates were licensed by endorsement of their diplomas or other certificates. The following colleges were represented:

College	PASSED	Year Grad.	Number Licensed
Yale University		(1921)	1
Georgetown University		(1922)	1
University of Kansas		(1922)	1
Baltimore Medical College		(1901)	1
University of Maryland		(1922)	1
Harvard University		(1921), (1922)	2
Tufts College Medical School		(1910)	1
University of Michigan Medical School		(1920), (1921, 2)	3
University of Michigan Homeo. Medical School		(1919)	1
Columbia University		(1920), (1922, 3)	4
Fordham University		(1916)	1
University and Bellevue Hospital Medical College		(1922)	1
University of Oklahoma		(1922)	1
Jefferson Medical College		(1919), (1920)	2
Woman's Medical College of Pennsylvania		(1894)	1
Queen's University		(1919), (1921)	2
University of Toronto		(1921), (1922, 2)	3
Bohemian University of Prague, Czechoslovakia		(1919)*	1
University of Budapest, Hungary		(1915),* (1918)*	2
University of Glasgow, Scotland		(1912)	1
Syrian Protestant College, Beirut, Syria		(1908)	1

College	FAILED	Year Grad.	Number Failed
Johns Hopkins University		(1920)	1
University of Maryland		(1918)	1
Tufts College Medical School		(1921)	1
New York Homeo. Medical College and Flower Hosp.		(1922)	1
University of Oklahoma		(1922)	1
Jefferson Med. Coll. of Philadelphia		(1912), (1920), (1921)	3
University of Tennessee		(1920)	1
University of Toronto		(1921)	1
McGill University		(1921, 3), (1922)	4
University of Vienna, Austria		(1893),* (1921),* (1922)*	3
University of Munich, Germany		(1921)*	1
University of Budapest, Hungary		(1912),* (1919)*	2
University of Catania, Italy		(1907)*	1
University of Florence, Italy		(1922)*	1
University of Genoa, Italy		(1916)*	1
University of Naples, Italy		(1920)*	1
University of Padua, Italy		(1917)*	1
University of Palermo, Italy		(1921)*	1

College	ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement with
College of Physicians and Surgeons, San Francisco		(1917)	California
Cooper Medical College		(1902)	California
University of Southern California Coll. of Med.		(1909)	California
Yale University		(1896)	Mass.
Howard University School of Medicine		(1921)	New Jersey
Hahnemann Medical College, Chicago		(1908)	Mass.
Rush Medical College		(1917)	Illinois
Johns Hopkins University Medical Department		(1915)	Maryland
Tufts Medical School		(1911)	Mass.
University of Michigan Medical School		(1902)	Indiana
Bellevue Hospital Medical College		(1896)	New Jersey
Miami Medical College		(1904)	Ohio
Ohio State University Homeo. Medical College		(1919)	Ohio
Jefferson Medical College		(1898), (1901)	Pennsylvania, Connecticut
University of Pennsylvania		(1901), (1908), (1911)	Penna. California
University of Vermont		(1919)	California
Medical College of Virginia		(1921)	Virginia
University of Toronto, Canada		(1908)	Penna.

College	ENDORSEMENT OF DIPLOMAS OR CERTIFICATES	Year Grad.
College of Physicians and Surgeons, Baltimore		(1890)
Bellevue Hospital Medical College		(1888, 2)
University of Buffalo Department of Medicine		(1875) (1888)

* Graduation not verified.

Book Notices

MODERN ASPECTS OF THE CIRCULATION IN HEALTH AND DISEASE. By Carl J. Wiggers, M.D., Professor of Physiology in the School of Medicine of Western Reserve University, Cleveland, Ohio. Second edition. Cloth. Price, $7.50. Pp. 662, with 204 illustrations. Philadelphia: Lea & Febiger, 1923.

The first of the three sections of this book presents the most modern conceptions as to how the circulation is maintained in health and disease. The second deals with the various instruments and procedures that are available for studying the circulation in man. In the third section an effort is made to correlate the data obtained by experimental investigation of abnormal conditions in the laboratory, with the results derived from the application of instrumental methods at the bedside and then to relate these, in turn, with the simpler signs and symptoms of the clinic. When we say that the last section is the weakest of the three, it does not imply that it is poor. It is poor only by comparison with the unusual excellence of the earlier chapters. Wiggers is at his best in discussing the physiologic, physical and mechanical questions involved in the circulation. To one interested in these features, this volume is invaluable. Much of what is contained is the result of his own investigations. These, as is well known, are most highly creditable to American scientific medicine. This edition contains so much that is new, and so much revision of the material of the first edition of eight years ago, that it is really a new book.

GRUNDZÜGE DER HYGIENE. Unter Berücksichtigung der Gesetzgebung des Deutschen Reiches und Österreichs. Von Prof Wilhelm Prausnitz. Zwölfte Auflage Bearbeitet von Dr. Carl Prausnitz, a. o. Professor der Hygiene an der Universität Breslau, und Dr. W. Prausnitz, o. ö. Professor der Hygiene, Vorstand des Hyg. Inst. d. Universität Graz. Cloth. Price, $4.25. Pp. 821, with 295 illustrations. München: J. F. Lehmann, 1923.

This edition, the twelfth, carries on the traditions of the earlier issues. Although the paper and binding show evidences of the changed conditions in Germany, the book makes a creditable appearance. As in most works of this sort, judicious pruning should be resorted to more freely. Antiquated or discredited procedures should be omitted, and much irrelevant material left out. There are, for example, thirty pages on disinfection, with descriptions of a multiplicity of apparatus and an insistence on detail that seem unnecessary. The section on ventilation is not very modern in its point of view, and there are other chapters in which American sanitarians will find little of service. In discussing pasteurization of milk, the statement is made that heating at 60 degrees for ten minutes is sufficient. This is not in accord with the best American practice. Prausnitz' Grundzüge, good as it is in many respects, is distinctly inferior to several modern books on hygiene in the English language.

THE TONSILS, FAUCIAL, LINGUAL AND PHARYNGEAL. With Some Account of the Posterior and Lateral Pharyngeal Nodules. By Harry A. Barnes, M.D., Instructor in Laryngology, Harvard Medical School. Second edition. Cloth. Price, $5. Pp. 217, with 45 illustrations. St. Louis: C. V. Mosby Company, 1923.

This admirable work may be studied with profit by every otolaryngologist. It begins with a discussion of the general nature of lymphoid tissue, with chapters devoted to the development of the tonsils, the anatomy and histology, and the question of the function. This part of the book is handled in a masterly manner which shows that the author has been a careful student of the subject. The chapters on the disease

of the tonsils and on neoplasms are handled in the same clear, lucid manner characteristic of the whole book. The chapter on the surgery of the tonsils contains a very fair presentation of the surgical problems and the several methods of removing these structures. The method of removing the faucial tonsils with local anesthesia has not been presented as favorably as many surgeons who are using this method more extensively will feel that it deserves. The author fails to emphasize sufficiently the much greater danger of using cocain injection as compared with procain. In his discussion of the latter anesthetic, his recommendation of waiting from ten to fifteen minutes after making the injection is not at all necessary. The operation may proceed immediately after the injection; and, when this has been properly carried out, pain is rarely experienced. The recommendations regarding general anesthesia will also hardly meet the approval of most experienced surgeons. This applies particularly to the recommendation that the operation be done with the patient in the upright position. The author admits that this position increases the risk of pulmonary abscess as the result of inhaling septic material expressed from the tonsil, but he favors the method because of the greater ease in doing the operation. This, however, is only a matter of experience, since a surgeon finds it just as easy in every way to do the operation with the patient in the recumbent position, which is the only proper position for administering a general anesthetic. In this connection we recall that the upright position was the one usually preferred by the early laryngologists for those exceptional operations requiring general anesthetics, and for the same reason that the author has given. The persistence, however, in this method for doing tonsil work at this time would appear to be a failure to adjust oneself to the change that has come in the practice of otolaryngology, a change that makes the operation of tonsillectomy under ether a very common and not an exceptional procedure. The final chapter on sequelae and complications includes a discussion of the roentgen-ray and radium treatment of tonsillar hypertrophy. In this the author points out that the extreme optimism of the early workers along this line has not been warranted by later work, and that the prospect held out that this method of treatment would make it possible for us to substitute such treatment for surgical procedures does not seem at all likely to be realized.

LEXIKON DER GESAMTEN THERAPIE DES PRAKTISCHEN AERZTES MIT EINSCHLUSS DER THERAPEUTISCHEN TECHNIK. Unter Mitarbeit zahlreicher Fachgenossen, Herausgegeben von Walter Marle. Second edition. Paper. Pp. 481-640, with 109 illustrations. Berlin: Urban & Schwarzenberg, 1923.

This instalment includes, among other items, a series of practical illustrated articles on the extraction of foreign bodies from the various parts of the body. Normal and abnormal sexual relations—a subject apparently tabu in our books on therapeutics—are briefly but satisfactorily discussed.

LUNGENTUBERKULOSE. Von Dr. O. Amrein, Chefarzt am Sanatorium Altein, Arosa. Second edition. Paper. Price, $1.20. Pp. 141, with 26 illustrations. Berlin: Julius Springer, 1923.

In spite of the fact that the author offers nothing new, and admits it, he has presented a book which cannot fail to be of help to any one who wants a short, concise treatise on tuberculosis of the lungs. The book contains numerous quotations, but these do not detract from its readableness. When Dr. Amrein presents his own views, he is conservative and clear. He gives space to palpation in the diagnosis of tuberculosis more freely than has any other German writer with whom we are acquainted. In the matter of diagnosis, he points out, quite correctly, that the average physician fails to differentiate between tuberculous infection and active tuberculosis. He calls attention to the man with an inactive tuberculosis, even an open case, who may be able to earn a livelihood for himself and his family, and puts the pertinent query: "When shall we treat the patient and when shall we let him alone?" This is a question for health officers to consider. Much space is given to medicinal treatment, but this is not uncommon among the Germans, who do not incline to therapeutic nihilism. The American student of climatology may find something useful in the chapter on climate, even though the author presents only European data. Complimentary reference is made to American health laws and sociological development, which serves, incidentally, to accenuate the shortcomings of similar endeavor in European countries.

DISEASES OF THE RECTUM, ANUS AND COLON, INCLUDING THE ILEOCOLIC ANGLE, APPENDIX, COLON, SIGMOID FLEXURE, RECTUM, ANUS, BUTTOCKS AND SACROCOCCYGEAL REGION. By Samuel Goodwin Gant, M.D., LL.D., Professor and Chief of the Department for Diseases of the Colon, Rectum and Anus at the Broad Street Hospital Graduate School of Medicine. Three volumes. Cloth. Price, $25 net, per set. Pp. 1616, with 1128 illustrations. Philadelphia: W. B. Saunders Company, 1923.

The previous books of Dr. Gant on some of the subjects covered in these volumes are well known for the place they have made in medical literature. The present three volume set represents what is apparently one of the most complete discussions of gastro-enterology available in English. Every aspect of the subject is considered, and that too in a systematic, direct manner. The various chapters are replete with center headings and side headings, differentiated by appropriate type to permit adequate reference. Undoubtedly, one of the most valuable features of the publication is the extensive illustrations. There are 1,128 illustrations and ten excellent colored inserts. The importance of hemorrhoids in proctology is shown by the fact that nine chapters are devoted to this subject, including anatomy, pathology, all of the various nonsurgical methods of treatment and surgical methods illustrated with complete technic. A special section devoted to physical therapy reveals the large place such methods have assumed in the treatment of chronic constipation and intestinal stasis. The volumes are complete with an excellent index.

A SIMPLE TREATMENT FOR TUBERCULOSIS. By Owen F. Paget, M.D., with Introduction by J. George Adami, M.D., F.R.S., and Prefatory Remarks by W. P. Birmingham, B.A., M.D., Hon. Surgeon, Public Hospital, Fremantle, Western Australia. Cloth. Price, $1.75. Pp. 80, with 7 illustrations. New York: William Wood & Co., 1923.

The treatment here described consists in the administration of dead tubercle bacilli by way of the nasal membrane. Accuracy of dosage is insured by using tablets of bacillus emulsion (B. E.), divided so as to permit of doses ranging from $\frac{1}{6000}$ to $\frac{1}{40}$ mg. The basis of treatment is stated by the author to be the ability of the nasal mucous membrane to elaborate infective material that comes in contact with it. As a result of this elaboration, antibodies are formed which are of advantage to the patient. The writer offers several temperature charts to show the improvement that follows the use of tubercle bacilli according to his method. The book is not particularly convincing, if one demands an accurate exposition of new theses; but the subject set forth is so simple of demonstration that it seems easy of confirmation—or the contrary. In addition, the introduction by Professor Adami and a preface by Dr. Birmingham serve as guarantees of good faith on the part of Dr. Paget. If further investigations bear out the statements of the author, a valuable addition to the therapy of tuberculosis will have been made; while, should his assertions be refuted, the matter will drop of its own weight.

PHYSICAL EXAMINATION OF THE CHEST, WITH SPECIAL REFERENCE TO PULMONARY TUBERCULOSIS, INCLUDING A CHAPTER ON TUBERCULOSIS OF THE LARYNX. By James Crocket, M.D., D.P.H., M.R.C.P.E., Lecturer on Tuberculosis, Glasgow University. Cloth. Price, 9 shillings net. Pp. 254, with 56 illustrations. London: H. K. Lewis & Co., Ltd., 1922.

This book contains the gist of the lectures given by the author in the course on physical diagnosis at Glasgow University. The author has given the essentials of topographic anatomy and physiologic features of both the normal and the abnormal chest. Such facts as given are those with which all who make physical examinations of the chest should be familiar. These facts, the normal topography and the abnormal variations, seem to be set forth in their proper relationships. The book covers inspection, percussion and auscultation of the chest, and includes three chapters on the roentgen-ray findings in the diagnosis of lung conditions, the larynx in pulmonary tuberculosis, and the classification of pulmonary tuberculosis. The chapter on roentgen-ray examination of the chest is short, and, of necessity, inadequate for a proper understanding of the subject. This chapter should not have been included in such a volume,

but taken up at adequate length in a work devoted to this subject. While the volume offers little that is new in physical diagnosis, it is surprisingly full of good material, and will be read with satisfaction.

DER EINFLUSS TIEFER ATMUNG AUF DEN HERZRHYTHMUS (SINUSRHYTHMUS) UND SEINE KLINISCHE VERWENDUNG. Von Dr. Alfred Pongs, Privatdozent für innere Medizin und Oberarzt der Medizinischen Universitäts-Klinik zu Frankfurt A.M. Paper. Price, $2.40. Pp. 326, with 160 illustrations. Berlin: Julius Springer, 1923.

The young author of this book died in 1921 before it had appeared in print. According to the preface by Professor von Bergmann, it embodies the results of eight years of study, research and bedside observation. To one interested in the physiologic and clinical aspects of the subject, it will be a valuable source of information. The average reader will be deterred from going far by the bewildering mass of detail and the long case histories. Condensed and worked up into a well-digested fifteen page article in a monthly medical journal, there would be many readers. Not the least important of the sections of the book is the one devoted to a study of digitalis in relation to respiration.

Miscellany

INDUSTRIAL ACCIDENTS IN THE UNITED STATES

When compensation for industrial accidents entered the field of legislation less than fifteen years ago, many states already had factory inspection organizations that were intended to care for accident prevention. These organizations compiled few statistics, however, and such as were compiled were of doubtful value from the standpoint of accident prevention. In 1914, Hoffman, in Bulletin 157, of the Bureau of Labor Statistics, pointed out that trustworthy industrial accident statistics did not exist for a single important industry. Since then the Interstate Commerce Commission, the Bureau of Mines, and the Bureau of Labor Statistics have undertaken to collect these facts, and during that time the whole system of workmen's compensation laws has developed. Many states, therefore, have assumed a greater interest in preparing and using accident statistics. Chaney has brought together this statistical activity of the states in Bulletin 339 of the Department of Labor, which gives a national view for the entire industrial field. However, lack of uniformity and completeness of state accident records render this data less useful than it should be. It was possible to obtain information for forty-two states concerning fatal and nonfatal accidents, but for only twenty-two states was there a classification of accidents by industries, for eighteen states a classification by cause of injury, for twelve states a classification by nature of injury, for eleven states a classification by location of injury, for three states severity of accidents, and for two states the amount of exposure. Agricultural labor and domestic service are not included in the operation of the workmen's compensation law in most states, and, in many, steam railways are not. The number of nonfatal accidents reported (1,636,837 in 1920) therefore is short of what it would be if all "tabulatable" accidents were recorded. Fatalities are more uniformly recorded from state to state. For five years ending with 1921, the greatest number of fatal accidents (12,531) occurred in 1918, since when there has been a steady decline in the number of deaths. This probably reflects the influence of a declining industrial activity as well as a renewed effort to prevent accidents which had been lessened by war. The preponderance of mining and the basic processes of iron and steel keep Pennsylvania foremost each year in the number of fatalities. New York comes next, probably because of the extent of her industries rather than their hazardous nature.

Steam railways have fairly complete records of industrial accidents since 1888. They show a large increase in injuries until about 1916, owing in part to expansion of operations and, in part, to better records than were possible in earlier years. The fatality rate for trainmen is declining. It dropped from 4.48 in 1917 to 1.79 in 1921. Yard brakemen have the highest fatality rate in three of these years, and road freight brakeman for the other two years. In frequency of nonfatal injury, yard brakemen exceed all other trainmen in each of the five years. The lowest casualty rates are for passenger conductors.

The iron and steel industry as a whole appears to show a definite decline in accident rates. The rates for blast furnaces are among the highest found in this industry, and these declined 52 per cent. in the second of two five-year periods ending in 1921. Foundries were the only department of the industry to show an increase for both accident frequency and severity. It is possible that the low accident figures for 1921 were partly due to industrial depression, and that rising accident rates will accompany the revival. Accident rates for the erection of structural steel were higher than for any other industrial group found, and were approached only by those for logging and sawmill operations. The accident severity rate for the erection of structural steel in 1920 was 25.9 per thousand hours' exposure, while that for logging (Oregon) was 21.56.

The fatality rate for coal mines has irregularly but steadily declined. From 1907 to 1921 it dropped 34 per cent., and at the same time production per death rose 71 per cent. The serious danger in mines, as shown by these records, is falling material. This accounts for nearly half of all accidents, and there is practically no decline in fatalities from this cause from year to year. Considering the fatality rates from the standpoint of causes of accidents, it seems that the coal mining industry has been standing still in the matter of safety in recent years. Even so, coal mining appears to be less hazardous than operating trains.

THE POSSIBILITY OF EXTENDING HUMAN LIFE

The average span of life in recent years in fourteen countries has ranged from 61.8 years in New Zealand for females to 22.6 years in India for males. Considering the diversity of social, sanitary and economic conditions that prevail in these countries, it is not difficult to realize why some persons live longer than others. A good indication of the material progress of the civilized countries of the world is the substantial increase in longevity that has occurred in the last hundred years. But we are still far from having attained the maximum extension of human life with the knowledge of medicine and sanitation that we now have.

The most important single item of mortality is the record for the first year of life; 15 per cent. each year of all deaths are of children less than 1 year of age. Fortunately, infant mortality is subject to control, a fact demonstrated in the recent drop in the birth registration area to a rate of 76 per thousand births. But New Zealand, in 1920, had an infant mortality rate of 50 for the entire country, and in a large number of cities in the United States the rate is already below 40. Dublin (*Nation's Health* **5**:189 [April] 1923) therefore assumes that an infant mortality rate for this whole country of 38.2 is attainable within a relatively short period of time.

We can, in fact, surpass that figure by suppressing infant mortality in the first month of life, in which field scarcely anything has been done on a country-wide scale. The detection and proper handling of syphilis in the mother, control of the toxemias of pregnancy, better obstetrics, and good nursing will bring the desired result. In the third year of life, almost two thirds of the entire mortality is due to diarrhea and enteritis, typhoid, measles, scarlet fever, whooping cough and diphtheria, all of which now can be controlled.

In the broad span between 10 and 60 years of age, it is assumed that the mortality can be reduced to half of what it was in 1910, a figure only 20 per cent. below that in recent years for New Zealand, where there is still much preventable mortality from tuberculosis. Diseases of the heart, kidney and blood vessels take a heavy toll in the latter part of this age period. These are preventable in part, and have actually been prevented in limited groups of people. The annual physical examination and the hygienic follow-up to encourage medical supervision should bring good results.

Medicolegal

Permanent Disability Dates from Last Amputation

(Milwaukee Electric Ry. & Light Co. v. Industrial Commission et al. (Wis.), 193 N. W. R. 352)

The Supreme Court of Wisconsin says that an employee of the plaintiff company sustained an injury that necessitated the amputation of one of his arms two inches below the elbow. The wound became infected, and was treated for six months by a physician, when another amputation was made just above the elbow. Under the workmen's compensation act of Wisconsin, the employee was entitled to a weekly indemnity to the time of amputation and a prescribed compensation for the permanent disability resulting from the loss of an arm at the elbow. The question was as to which amputation the weekly indemnity was to be allowed. The industrial commission allowed it to the second amputation, and the company sought through this action to have the allowance of the weekly indemnity limited to the time of the first amputation. The difference in this instance amounted to $368.31. The supreme court affirms a judgment that affirmed the award.

It is clear that no intermediate amputation is meant when there are more than two amputations, but it is not clear whether the first or the last amputation is meant by the statute. The plaintiff argued that it was the first, because that was the natural inference from the language used, and that was the amputation that severed the arm or limb from the body. But the court is led to the conclusion that the statute means the last amputation by these considerations: It frequently happens that a finger, for instance, needs amputation, and then it is found later that, owing to serious infection or otherwise, the hand must go, and later still, perhaps the arm. Now, it cannot be seriously doubted that in such case the amputation that measures the liability for permanent disability under the statutory schedule is meant, and that is the last amputation. It is true that in this case the liability for permanent disability was under the same schedule as to both amputations, one being just below and the other just above the elbow; but the construction adopted makes the term "amputation" mean the same in each case, no matter how many amputations have occurred and no matter whether there has been a change in the schedule under which it comes; namely, the last amputation. It is also reasonable to suppose that the legislature intended the period of permanent disability for which compensation is allowed to begin at the time the amputations end, when there is more than one amputation, for it is the last amputation that measures the extent of liability, and the supreme court thinks that this was the amputation the legislature had in mind. The fact that in this case the liability for permanent disability remained the same did not take it out of the general or uniform rule of construction adopted as to what amputation the statute means.

Allowed to Show Roentgenogram of Normal Person and to Quote Physician

(McGrath v. Fash (Mass.), 139 N. E. R. 303)

The Supreme Judicial Court of Massachusetts, in overruling the defendant's exceptions in this action to recover damages for personal injuries, for which the plaintiff obtained a verdict, says that a physician who was a specialist in the use of the roentgen ray was called as a witness by the plaintiff and testified concerning certain roentgenograms purported to be of the plaintiff's pelvic region, where the principal injury claimed by her existed. He said that the plates showed an abnormal condition of the pelvis, particularly with reference to the relation of the bones, some of which were alleged to have been fractured. He also produced another roentgenogram, which he testified showed the pelvic bones of a normal person, this plate being admitted in evidence subject to the defendant's exception.

It is settled that a roentgenogram showing the physical condition of a plaintiff in an action for personal injuries is admissible in evidence, and this court sees no valid reason why a plate of another person, properly verified by proof, which showed the pelvis in its normal condition, was not competent to assist the jury in understanding the nature and extent of the plaintiff's injury, in the same way that a skeleton is often exhibited in similar cases. Whether the plate was sufficiently verified was a preliminary question of fact to be decided by the trial judge, and was not subject to exception. As the plate in question would have been of assistance to the jury in understanding the case, this court is of the opinion that it was admissible in the discretion of the trial court.

A physician called by the defendant testified that he had examined the plaintiff at the hospital. He described the injuries which he found and stated that there had been fractures of two bones of the pelvis, which were well set, and that the pelvis "was tipped a little bit." The plaintiff was called in rebuttal and testified that she remembered when she was examined by this physician. She was then asked as to what he said about her condition, and answered, "He told Dr. Robbins this was the worst accident case he handled in the last ten years." The defendant requested that the answer be stricken out; and the judge admitted it only so far as it tended to contradict any opinion or statement of the physician previously testified to by him. A majority of the supreme judicial court is of the opinion that the evidence as so limited was admissible in the discretion of the presiding judge. The jury might have found that it was more or less inconsistent with the testimony of the physician on his direct examination, in that he believed the plaintiff's injury was more serious than he had testified it to be. The statement made in the hospital had a tendency to contradict his testimony, and for this reason might be found to affect its weight. As limited by the presiding judge, the substantial rights of the defendant were not injuriously affected.

Evidence of Negligence in Setting Broken Arm

(Knopp v. Thornton (Ky.), 250 S. W. R. 853)

The Court of Appeals of Kentucky, in reversing a judgment entered on a verdict directed for the defendant, says that while the plaintiff was cranking an automobile, one of the bones of his forearm next to the wrist was broken and twisted around out of position, and the other bone of the forearm was dislocated. According to his evidence, he applied for treatment to the defendant, who pulled at the arm, laid it on a board on the plaintiff's knee, placed another board on top of the arm, bound it, and sent the plaintiff away, telling him that he need not come back until the end of six weeks, unless there was too much pain. Twice the plaintiff returned to have his arm examined, but the defendant gave him only casual attention. Later, the defendant removed the splint and told the plaintiff that the arm was all right, although it was a little crooked. However, roentgenograms were then made by other surgeons, who found that the ends of the broken bone were not together, but were in such a position that they would not unite, while the other bone was out of its socket. The gist of the defense was that the plaintiff had dislocated the bones after they had been set and bound by the defendant; but the plaintiff's evidence on this point directly and positively negatived that. He said that he did not jar or wrench his arm in any way; that he was very careful not to do so, following the defendant's instructions on that subject; that the bones in his arm were left exactly in the same position in which they were placed by the defendant. There was no evidence to the contrary. With the evidence in this condition, the trial court erred to the great prejudice of the plaintiff in directing a verdict for the defendant physician. The plaintiff had a right to have the case submitted to a jury.

The rule is that a physician holding himself out as skilled in the performance of surgical operations, who undertakes to perform an operation, must exercise such care as physicians and surgeons of that vicinity generally exercise in the performance of like duties; and if he fails to do so, he is liable in damages to a person injured by his negligence or carelessness. If the evidence of the plaintiff could be relied on, the defendant was not only negligent and unskilled, but directly responsible for much of the pain and suffering that the plaintiff endured, and for the failure of the bones of

his arm to unite and strengthen immediately after the plaintiff applied for treatment. The horrible condition of the bones of the plaintiff's arm, as shown by the roentgenograms, which were acknowledged to be correct, made it plain that there was no skill or ability employed in the setting of the bones if they were in the same position at the time the pictures were made that they were at the time when the defendant set them, as contended by the plaintiff. That was a question of fact which should have been submitted to the jury.

Society Proceedings

COMING MEETINGS

American Academy of Ophthalmology and Otolaryngology, Washington, D. C., Oct. 15-20. Dr. Luther C. Peter, 1529 Spruce St., Philadelphia, Secretary.
American Association of Railway Surgeons, Chicago, Oct. 18-20. Dr. L. J. Mitchell, 29 E. Madison St., Chicago, Secretary.
American College of Surgeons, Chicago, Oct. 22-26. Dr. Franklin H. Martin, 40 E. Erie Street, Chicago, Secretary.
Central Neuropsychiatric Association, St. Louis, Oct. 20. Dr. Karl A. Menninger, Topeka, Kan., Secretary.
Central States Pediatric Society, Detroit, Oct. 18-19. Dr. H. T. Price, Westinghouse Building, Pittsburgh, Pa., Secretary.
New England Surgical Society, Boston, Oct. 17-18. Dr. P. E. Truesdale, 151 Rock Street, Fall River, Mass., Secretary.
Radiological Society of North America, Rochester, Minn., Dec. 3-7. Dr. M. J. Sandborn, Appleton, Wis., Secretary.
Southern Medical Association, Washington, D. C., Nov. 12-15. Mr. C. P. Loranz, Empire Building, Birmingham, Ala., Secretary.
Tri-State District Medical Society, Des Moines, Iowa, Oct. 29-Nov. 1. Dr. William B. Peck, 82 Stephenson Street, Freeport, Ill., Managing Director.
Virginia, Medical Society of, Roanoke, Oct. 16-19. Mr. G. H. Winfrey, 104½ W. Grace St., Richmond, Secretary.

AMERICAN ASSOCIATION OF OBSTETRICIANS, GYNECOLOGISTS AND ABDOMINAL SURGEONS

Thirty-Sixth Annual Meeting, held at Philadelphia, Sept. 19-21, 1923

(Concluded from page 1230)

Clinical Significance of Chemical and Serum Analyses of the Blood of Uterine Cancer Carriers Subjected to Measured Radiation Doses

DR. HENRY SCHMITZ, Chicago: Radiation sickness is caused by the absorption of autolytic products from the degenerative areas of the tumor mass. This intoxication is an example of a nonspecific reaction. The serum of patients with carcinoma becomes carcinomalytic after treatment with radium and roentgen rays, as evidenced by the Freund-Kaminer reaction. The results of the chemical and serum examinations of the blood of carcinoma patients would indicate that patients with extensive and necrotic cancer tumors should be subjected to radiation therapy with a great deal of caution, a fractional interval method being preferably used to prevent severe radiation intoxications. Patients with advanced carcinoma should not be subjected to radiation therapy.

Treatment of Placenta Praevia

DR. ROSS MCPHERSON, New York: In our recent series of cases the preference in treatment was given to gauze packing, followed in most instances by an internal podalic version, this being done in 354 out of 591 cases. There were thirty-four abdominal cesarean sections, two extraperitoneal cesarean sections, three vaginal hysterotomies, twenty Braxton Hicks operations, forty-three breech extractions and twenty-two craniotomies on dead children, the rest being made up of forceps and normal deliveries. The resultant mortality to the mother was 12.1 per cent., with a stillbirth mortality of 42 per cent. One hundred and seven children born alive died before leaving the hospital, or about 18 per cent., a total fetal mortality of slightly more than 60 per cent. I believe that most of the maternal mortality in placenta praevia is due to delay in diagnosis of the condition, accompanied by tardiness in treatment, combined with careless manipulation and resultant infection, all of which are preventable and inexcusable. If these factors are eliminated, as they can be, the results for the mother should be much improved, and a patient will rarely be lost. Regarding the fetal mortality, so much cannot be said, as the greater majority of the children are so premature that little can be done to save them, even if born alive. Cesarean section on the viable fetus does offer a means of lowering this mortality to an appreciable degree, and should be employed in this class of cases more frequently.

Duplex Uterus with Multiple Pregnancy

DR. WILLIAM SEAMAN BAINBRIDGE, New York: A woman, aged 31, had four children, all born in normal labor. During her fifth pregnancy she had an uncontrollable uterine hemorrhage. I operated and found a duplex uterus with a single cervix. The right half of the uterus contained the remains of a dead fetus of about 4 months. There was a living fetus in the left body of the uterus. The patient had an uneventful convalescence and a rapid recovery. She had two subsequent pregnancies, one a full term child with normal delivery, and the other a miscarriage at three months.

Endometrial Tissue in the Ovary

DRS. OTTO H. SCHWARZ and ROBERT CROSSEN, St. Louis: The frequency with which we encountered this lesion in our series leads us to believe that it is quite common. The lesion in the stage which respresents a hematoma surrounded by a wall containing old blood, connective tissue cells and large mononuclear wandering cells without any epithelial lining can easily be overlooked. We have failed to observe this lesion in connection with definite lutein and follicular hematomas in various stages, although we observed these conditions in considerable numbers in our series. Occasionally, there was a somewhat similar appearing lesion in small stromal hemorrhages, but this occurred in a rather irregular manner and never in the same characteristic way in which it was constantly observed in connection with the hematomas supposedly of endometrial origin. The germinal epithelium of the ovary in the presence of adhesions particularly associated with hemorrhage may simulate tube or uterine epithelium. We have observed this frequently, but we have not observed the formation of gland tubules beneath such an area, nor have we observed any characteristic stroma beneath the germinal epithelium. We believe that in the case of chronic subinvolution of the uterus, with no other lesion present in the wall of the uterus, in the production of the lesion of diffuse adenomyoma of the uterus the glands invade the wall primarily, and the hyperplasia of the myometrium develops subsequently. Accordingly, we feel that the muscle tissue so well developed in the late stages of adenomyoma of the rectovaginal septum may have its origin in this manner.

Maternal Morbidity and Mortality in the United States

DR. GEORGE CLARK MOSHER, Kansas City, Mo.: We stand fourteenth among the so-called civilized nations, with a higher death rate only in Spain and Belgium. No decrease in maternal mortality has occurred since 1900 according to the census reports: 16,000 women die in labor each year, 7,500 of these from puerperal fever. We must eliminate the midwife as the chief source of sepsis in childbirth. The death rate of mothers in Philadelphia is reported as higher in 1921 than in 1920. This is also true of St. Louis, Cleveland and Buffalo. In every large city, except Pittsburgh, the number of midwives has largely decreased. There is no mass mortality in obstetrics. It is an individual mortality. There has been no reduction in the death rate in twenty years. Puerperal sepsis and eclampsia claim more than half the patients who die. These conditions are largely preventible. Many patients fail to consult a physician early in pregnancy. As a result, toxemia gains a start which results in eclampsia which intelligent supervision might have prevented. Counsel, when called, is too frequently a young surgeon whose only idea of delivery is a cesarean section. Too little attention to prenatal care or the postpuerperal observance of patients is given women by the general practitioner, as a rule. The midwife is rapidly disappearing; she is not the menace formerly supposed. The problem resolves itself into reform in our methods. We must institute a program to elevate obstetrics: to give the student more careful training in

principles, placing obstetrics on a plane with surgery; to advise the man in general practice to take advantage of postgraduate opportunities at least once in five years and to attend a short clinic every year; to urge the physician to read the standard medical journals and to apply his knowledge; to educate and urge patients to consult their physician early in pregnancy and to follow advice throughout.

Radical Surgical Treatment of Procidentia

DR. E. P. SLOAN, Bloomington, Ill.: I performed the Murphy operation twenty-eight times. In every single case drainage was instituted, or had to be instituted. In nineteen cases there was a fistula that persisted over four months; eight of these patients required operation for removal of fistula. In six cases the drainage stopped and the fistula closed in three months. In two cases, drainage was maintained for only six weeks. Sixteen of these patients were troubled with an irritating discharge afterward. I have performed the Collins operation 119 times. Fourteen women were subsequently bothered with offensive discharge from the cervix. In not one of these 119 cases was drainage maintained for more than four weeks. I have performed the Jackson operation sixteen times. Not one of these patients has developed postoperative cervical discharge. None have required drainage for more than four days. The results from this operation have been as satisfactory as those from the Collins operation, with the exception of some pain that persists for some months. I attribute this pain to the compression of, and tension on the portions of the sensitive rectus muscles, encircled by the uterus. In the Collins operation the uterine stump is supported by the only slightly sensitive fascia fibers and so no tension pain occurs.

Chemical Hysterectomy

DR. W. WAYNE BABCOCK, Philadelphia: This is a very simple and easy method for the removal of most of the uterus without invasion of the peritoneum. The uterus is packed with a gauze tape moistened with a saturated solution of zinc chlorid, and the vagina with a protective packing of gauze impregnated with sodium bicarbonate. After from one hour to seventy-two hours, dependent on the intrauterine capacity and the thickening of the uterine walls, all gauze is removed. The patient usually remains in bed, with but little reaction or pain, for about four days, and shortly after this the uterus, with the exception of the parametrium and an outer thin layer of cortex, is expelled from the vagina as a firm, nearly odorless mass. A few months later, examination reveals what appears to be a diminutive uterus and cervix without cavity or discharge. The operation may be conducted under local, narcotic or gas anesthesia in from three to ten minutes. The operation is used: (1) quickly to sterilize and destroy infected metrium and endometrium in certain acute and chronic infections; (2) to produce amenorrhea and sterility, and (3) to remove certain interuterine and intra-uterine tumors.

Use of Local Anesthesia in Handling Septic Conditions Within the Abdomen

DR. ROBERT EMMETT FARR, Minneapolis: At present, the use of local anesthesia is largely limited, when dealing with septic conditions within the abdomen, to such operations as simple drainage of abscesses, and moribund patients in whom general anesthesia would be especially hazardous. In limiting the use of local anesthesia to the classifications mentioned, surgeons fail to realize the facility with which it may be employed. In the majority of cases the use of local anesthesia offers a better chance for the patient. It is surprising how much may be accomplished with local anesthesia in the treatment of subacute and chronic infectious processes.

Diverticulitis

DR. JEROME M. LYNCH, New York: The treatment of diverticulitis should be conservative. When an acute abscess occurs, the same treatment applies as in any other part of the abdominal cavity. A stoma is always indicated preliminary to any radical procedure, and it is needless to mention that it should be placed as far as possible from the seat of inflammation. A stoma, by directing the fecal current, prevents further infection, allows the patient to recuperate, and puts him in the best position for subsequent radical procedure.

Lesions of the Cervical Stump of a Supravaginally Ablated Uterus

DR. FRANCIS REDER, St. Louis: Total hysterectomy is indicated when the patient's history shows the presence of malignancy, and in those cases of cervical lacerations in which an extreme ectopic condition has developed. Patients with a cervical disease amenable to a plastic operation, and still in active sex life, should be subjected to supravaginal section as the preferable operation. Especially precaution should be exercised in equalizing the wound surfaces created by the wedge shaped excisions, that a good apposition of the newly formed lips may be obtained. Such a cervix, after healing, is perfectly smooth and healthy in appearance, and what remains of the cervical canal is almost completely obliterated. The removal of the cervical tissue should be as extensive as is consistent with the judgment of the surgeon, since it is presumed, on histologic grounds, that the removal of a large amount of the glandular portions of the cervix proportionately diminishes the chances of subsequent carcinomatous degeneration. I prefer this procedure to the "cupping out" of the cervix as practiced by Kelley, or the intracervical enucleation of Lahey. Ever since Dr. Polak began to agitate this subject of stump cancer so forcibly, my examination of the cervix in a patient to be operated on for a uterine fibroid has been more searching and minute.

Septic Infections Following Childbirth, or an Analysis of Maternal Mortality Considered From the Standpoint of Increase of Death Among Mothers

DR. EDGAR A. VANDER VEER, Albany, N. Y.: Midwives, so far as statistics are available, seem to make a better showing than the ordinary practitioner, which may be explained in two ways: 1. The general practitioner is usually in a hurry when attending a confinement case, and makes frequent and unnecessary vaginal examinations, with the resultant increase of the chances of infection. The midwife is content to sit patiently by and let Nature perform her part, making few examinations, and consequently with a good deal less chance of infecting the woman in labor. 2. The midwife, in a great majority of the cases, attends only the normal confinement, sending for the physician whenever anything abnormal occurs, with the result that if anything goes wrong the physician is charged on the records with the maternal death, and not the midwife, to whom, in many cases, it should be attributed, thus apparently giving the midwife a better record than she should have, and the physician a poorer one. I believe there should be a classification in which both the midwife and the physician are in attendance and sharing the responsibility. In 1910, the maternal mortality rate, outside New York City, from all puerperal causes, was 78 per cent.; in New York City it was 66 per cent. The mortality rate for puerperal septicemia was 28 and 18 per cent., respectively. The maternal death rate, from all puerperal causes, gradually dropped to 1916, when it was 54 per cent. and 46 per cent., respectively. The death rate from puerperal septicemia dropped to about 20 per cent. and 18 per cent., at about which it has remained ever since, showing some improvement in that direction. In 1917 the maternal death rate from all puerperal causes gradually rose again, reaching its peak in 1918, when it was 82 per cent. and 70 per cent., respectively. This increase in the death rate was due to the influenza epidemic and possibly also to the inability for the woman in labor in the rural district to receive proper medical attendance, so many physicians being away in service. That year the mortality rate from puerperal septicemia remained about the same. For 1921 the mortality rate from all puerperal causes was 60 per cent. outside New York City, and 54 per cent. in New York City. The mortality from puerperal septicemia in 1921 was 21 per cent. and 12 per cent., respectively. Under proper surgical technic, puerperal septicemia should virtually be abolished.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Obstetrics and Gynecology, St. Louis

6: 137-256 (Aug.) 1923

*Olshausen Operation for Suspension of Uterus. W. P. Graves, Boston.—p. 137.
Sociologic Responsibility of Obstetrics and Gynecology. O. P. Humpstone, Brooklyn.—p. 149.
*Changes in Uterine Vessels During Pregnancy. O. H. Schwarz and F. P. McNalley, St. Louis.—p. 155.
Treatment of Benign Uterine Hemorrhage by Irradiation. Analysis of 100 Cases. W. C. Danforth, Evanston, Ill.—p. 172.
Resuscitation in Abdominal Surgery. W. W. Babcock, Philadelphia.—p. 179.
*Incidence of Cervical Erosion Following Normal Childbirth and Results Obtained with Dickinson Method of Treatment. Wm. Kerwin, St. Louis.—p. 185.
Diagnosis of Borderline Obstetrics. G. C. Mosher, Kansas City, Mo.—p. 188.
Nephrolithiasis and Pregnancy. A. P. Heineck, Chicago.—p. 191.
Case of Endometritis Decidualis Polyposa. E. C. Sage, Omaha.—p. 206.

Olshausen Operation for Suspension of Uterus.—Graves has performed the Olshausen operation 1,370 times, 50.2 per cent. of the cases being for general prolapse of all stages. The other cases include, in the order of frequency, simple retroversion, anteflexion with retrocession, pelvic inflammation, uterine fibroids, ovarian tumors and extra-uterine pregnancies. Of the 1,370 cases follow-up examinations were possible in 746, made at periods ranging from two months to about eight years after operation. In six of the recorded cases the artificial attachment failed to hold. Of these six failures, two cases occurred when the cervical stump had been suspended for severe procidentia; three followed childbearing, and one case followed suspension for simple retroversion in a patient who had had a previous recurrence after round ligament shortening. In fifteen of the 1,370 cases one of the silk stitches became infected, and in six of these cases the stitch required removal. In the remaining cases, the wound healed or the stitch was discharged spontaneously. In one case a small hernia worked its way through the site of the silk ligature on one side of the wound. There were no known cases of intestinal obstruction, nor of dystocia following the operation and this may also be said of all operations by the Olshausen method at the Free Hospital for Women by other members of the staff. There were four deaths in the series, one from pulmonary embolism in a case of procidentia; one from cerebral embolism in a prolapse case with a history of endocarditis; one from probable peritonitis in a case of tubercular salpingitis; and one from a typical streptococcus peritonitis. In this last case the abdomen was opened on the suspicion of intestinal obstruction, at which time the true diagnosis was made. The patient died soon after the second operation. None of the deaths could be attributed specifically to the Olshausen operation.

Changes in Uterine Vessels During Pregnancy.—Schwarz and McNalley examined twenty-four uteri, some from early pregnancies between fourteen and nineteen weeks, sixteen from later pregnancies, five in the early puerperium, and one five months postpartum with reference to changes in the blood vessels and especially the intima. Intimal changes in the arteries varied from "definite" in the early cases to "marked" in the later and the postpartum cases. Changes in the veins were present in postpartum cases, only with one or two exceptions. These vessel changes are believed to have clinical significance, explaining complications of pregnancy abnormalities seen in the placenta. Premature detachment of a normally implanted placenta, abruptio placenta, and uteroplacental apoplexy is probably caused by the sudden escape under pressure of blood from the normal channels. The authors feel that the term "uteroplacental apoplexy" is the preferable term for this condition.

Incidence of Cervical Erosion After Childbirth.—Of 102 cases seen by Kerwin, twenty-one women who were delivered spontaneously showed a marked cervical erosion. Kerwin favors the use of the Dickinson cautery knife in the treatment of these cases.

Annals of Clinical Medicine, Baltimore

2: 1-74 (July) 1923

*Clinical Study of Pancreatitis. J. B. Deaver, Philadelphia.—p. 1.
Roentgenologic Studies of Pneumoconiosis and Other Fibrosing Conditions of Lungs. H. K. Pancoast, Philadelphia.—p. 8.
*Hypertension: Its Significance and Treatment. R. M. Goepp, Philadelphia.—p. 24.
*Phenoltetrachlorphthalein Test for Liver Function. C. C. Higgins, St. Louis.—p. 30.
Basal Metabolism: Value of Its Estimation. H. K. Mohler, Philadelphia.—p. 39.
Clinical Value of Graphic Heart Records. S. C. Smith, Philadelphia.—p. 42.
Diagnosis of Gastric Disease. M. E. Rehfuss, Philadelphia.—p. 55.
Why Abnormal Mental Disorders Develop. E. A. Strecker, Philadelphia.—p. 63.
Significance of Findings of Health Survey. F. A. Craig, Philadelphia.—p. 70.

Pancreatitis.—Pancreatic disease, in Deaver's opinion, is the result of associations with bad company in the abdominal cavity. The pancreas suffers from continued insults from a diseased appendix, gallbladder, stomach or duodenum. Therefore, patients should be protected against these evil influences by early attention and removal of the primary offenders. The pancreas is a very important organ of digestion and a very essential part of the endocrine system. It is securely lodged within the abdominal cavity and cannot itself be removed. It is essential, therefore, to give it every possible protection from assault from its neighbors which so often behave very badly and can be routed out only by surgical methods.

Hypertension: Significance and Treatment.—The management of a patient who presents himself for treatment because some one has told him his blood pressure is too high, Goepp says, is one of the commonest and often the most difficult task the physician is called on to perform. At the outset it is well to warn the patient not to pin his hopes on any considerable reduction of his blood pressure, and above all not allow him to know what the reading is if it can possibly be avoided. If the abnormal blood pressure is found to be due to nephritis, heart disease or other pathologic condition, the problem at once becomes less difficult, and the appropriate treatment follows the usual lines. If, after thorough physical and laboratory examination, no definite cause is discovered, the next step should be the removal of any possible focus of infection, and if this fails, certain general measures are available which may prove helpful. First in importance is the proper regulation of the patient's habits; securing the necessary amount of rest and recreation, above all the avoidance of strain—physical, mental and emotional—and worry. Occasional periods of absolute rest in bed on a restricted diet should be prescribed whenever possible. These matters must be regulated differently according to the patient's age, sex and social state. Golf, horseback riding, swimming are suitable; tennis, handball and the more active sports must be forbidden. In the matter of diet, coffee, condiments, the red meats and foods containing a large amount of extractives are chiefly to be avoided. Quantity, however, is more important than quality. Tobacco in moderation probably does no harm. If evidences of intestinal stasis—constipation, flatulence, indicanuria—are prominent, colonic irrigation may prove useful. Warm baths and electric baths, followed by massage, enjoy a well merited popularity. In the arteriosclerotic, especially in cases of aortitis, occasional courses of mercury and sodium iodid, combined with spartein or digitalis have proved quite helpful in Goepp's experience. Digitalis, however, is not always well tolerated. It often aggravates the subjective symptoms of precordial discomfort, palpitation and the like, when they are present.

Phenoltetrachlorphthalein Test of Liver Function.—The liver functioning normally, eliminates phenoltetrachlorphthalein in from eighteen to twenty-two minutes; at that time dye first appears in the bile recovered by the duodenal drainage tube. This follows intravenous injection. The normal total dye excretion varies between 40 and 48 per cent. Normally, the dye reaches a maximum elimination in approximately

eighty minutes, and disappears in from 120 to 140 minutes. In diseases involving the liver, a definite inability to eliminate the dye is observed, the diminution of total output and the delay in the initial time of output running somewhat parallel with the destruction or stasis of liver parenchyma. In cardiac disease in which decompensation has occurred and is complicated by chronic passive congestion of the liver, a diminution of total output, as well as a delay in the initial appearance of the dye, is discernible; moderate congestion exhibits only to minor degree the inability to excrete the pthalein.

Arkansas Medical Society Journal, Little Rock

20: 55-73 (Aug.) 1923

Development of Treatment of Tuberculosis. A. C. Shipp, Little Rock. —p. 55.

Boston Medical and Surgical Journal

189: 269-302 (Aug. 23) 1923

*Psychotherapy. A. F. Riggs, Stockbridge, Mass.—p. 269.
*Estimate of Information Derived from Use of Tests for Renal Function. W. T. Longcope, Baltimore.—p. 273.
Focal Infections in Relation to System Diseases. W. G. Thompson, New York.—p. 280.
*Syphilis with Negative Wassermann Reaction. C. M. Smith, Boston. —p. 286.
Insulin, Diabetes and General Practitioner. E. P. Joslin, Boston.—p. 288.

Psychotherapy.—There are, says Riggs, two outstanding elements in all forms, regular or irregular, of psychotherapy. They are: suggestion, be it indirect or direct, with or without some form of hypnosis; and education. These elements are not only the all important factors in formally specific psychotherapy, but are always present and to be reckoned with in all forms of therapy. The degree of their potency for good or evil varies directly with the sensitiveness of the patient and the intelligence of the physician.

Value of Renal Function Tests.—No one test, or scarcely any combination of tests, according to Longcope, is alone indicative of nephritis as we now understand the disease. In the acute and subacute forms of the disease they need rarely be employed for diagnosis. For prognosis, however, as an indication for treatment, and to measure the degree of recovery, the phthalein excretion and blood chemistry may be used to good advantage in acute nephritis. In the chronic form of the disease the test devised to measure the power of the kidney to concentrate chlorids and nitrogen, and the phthalein test are of real value in accurate and early diagnosis. A study of the blood chemistry furnished a method which sometimes gives further assistance in diagnosis, but is of much more value for prognosis and the control of therapy. In the later stages of the disease, when uremia is pending or when the patient is in coma, a study of the blood chemistry is one of the most important adjuvants at our disposal in differentiating uremia of nephritic origin from other forms of convulsive seizures and coma, with which it is so often confused.

Importance of Routine Wassermann Tests.—The taking of blood for a Wassermann reaction, Smith asserts should be part of a complete physical examination—like a routine urine analysis or blood pressure observation, the results to be studied and interpreted with the history and physical findings. Unsuspected positive reactions in supposedly healthy people vary from 0 to 10 or 20 per cent., race, environment and social status playing important parts as determining factors. Urban always shows an increase over rural population. With a positive Wassermann reaction as a basis, incipient nerve, vascular or visceral changes hitherto unsuspected may be detected in time to derive benefit from the application of appropriate treatment.

Endocrinology, Los Angeles

7: 519-660 (July) 1923

Progress in Preparation of Pancreatic Extracts for Treatment of Diabetes. J. R. Murlin, Rochester, N. Y.—p. 519.
*Classification and Treatment of Hypophyseal Disorders. J. L. Tierney, St. Louis.—p. 536.
*Function of Lobes of Hypophysis as Indicated by Replacement Therapy with Different Portions of Ox Gland. P. E. Smith and I. P. Smith, San Francisco.—p. 579.

Classification and Treatment of Hypophyseal Disorders.—Tierny's paper is based on study of 1,995 cases displaying endocrine abnormality, as manifested by their hormonic signs. Of this number 711 showed pituitary disturbance (285 purely pituitary, and 426 pluriglandular with pituitary involvement). Tierney stresses the fact that there is remarkable discrepancy and lack of coordination in the available evidence concerning the function of the pituitary gland, considered either in its entirety or from the standpoint of its component lobes. There is little definite knowledge concerning the chemistry of the gland. The anterior lobe conforms to the requisites of a secretory gland, whereas the pars nervosa does not, being purely nervous tissue, unless the pars intermedia is regarded as being the essentially secreting portion of the posterior lobe. Concerning the efficacy of the desiccated preparations of the gland, Tierney says, there is contradictory evidence. The value of pluriglandular therapy on the basis of a cell selectivity is being overpopularized; and, while one must realize the frequency of pluriglandular combinations and the almost absurd number of possible pathologic combinations, sufficient attention must be paid to uniglandular therapy, or the rational combination of glands based on the presenting hormonic signs, and to the fact that pluriglandular imbalance may occur as the result of a lesion in one gland and may be restored by correcting the function of that particular gland. Therapy should be based on the presenting hormonic signs, and, if these signs warrant, should be uniglandular, or even unilobar; and if other glands are apparently involved, an associated therapy should be instituted, but one based on the presenting symptomatology. To secure the best results, therapy should be instituted early in the course of the disease, which implies early diagnosis. After pluriglandular involvement has occurred, a state usually resulting within a year, responses to therapy are less certain.

Functions of Lobes of Hypophysis.—The intraperitoneal injection made by the Smiths of different portions of the bovine hypophysis in the hypophysectomized tadpole gave the following results: Pars anterior brings to normality the four deficiencies resulting from hypophysectomy in that it accelerates the growth rate; induces a normal depth of pigmentation; repairs the atrophic thyroid and interrenal bodies, the specimens metamorphosing; and reduces to normal dimensions the fat organ. The normal and thyroidless tadpoles, when injected with anterior hypophysis, show an acceleration in their growth rate, attaining an unusually large size, and display an increased depth of pigmentation. Pars intermedia corrects the pigment upset and reduces the size of the fat organ. Pars neuralis elicits a moderate pigmentary response and reduces the size of the fat organ. Colloid induces a slight response in the pigmentary system. Of the various principles in the bovine anterior hypophysis that evoking a response in the pigmentary system appears to be stable, withstanding drying, severe heat, and certain chemical treatments; while those principles accelerating growth and reaction with the endocrine system are more labile, remaining active, however, after treatment with alcohol.

Florida Medical Association Journal, St. Augustine and Jacksonville

10: 33-64 (Aug.) 1923

Treatment of Burns and Other Injuries of Eye. W. S. Manning, Jacksonville.—p. 33.
Major Eye Injuries. W. H. Adams, Jacksonville.—p. 35.
Nasal Headaches with Case Histories. A. K. Wilson, Jacksonville.—p. 36.
Meckel's Ganglion and Glaucoma. H. Byrd, Ocala.—p. 39.
Treatment of Fractures of Lower Third of Femur. J. S. MacEwan, Orland.—p. 42.
Cardiovascular Troubles. Suggestions as to Treatment and Prevention. W. L. Hughlett, Cocoa.—p. 44.
Hodgen Splint. R. B. Harkness, Lake City.—p. 49.
Pyorrhea. A. B. Whitman, Orlando.—p. 50.

Indiana State Medical Association Journal, Ft. Wayne

16: 217-240 (July 15) 1923

Some Types of Dyspnea. J. Wynn, Indianapolis.—p. 217.
Digitalis Therapy. E. F. Kiser, Indianapolis.—p. 220.
Adenoma of Prostate Gland. C. M. Mix, Muncie.—p. 222.
Treatment of Syphilis. J. A. Fordyce, New York.—p. 226.

Journal of Biological Chemistry, Baltimore

57: 1-315 (Aug.) 1923

*Synthesis of Hippuric Acid in Animal Organism. V. Influence of Amino-Acids and Related Substances on Synthesis and Rate of Elimination of Hippuric Acid After Administration of Benzoate. W. H. Griffith and H. B. Lewis, Ann Arbor.—p. 1.

*Influence of Positive Nitrogen Balance on Creatinuria During Growth. V. J. Harding and O. H. Gaebler, Toronto.—p. 25.

*Alkalosis Versus Abnormal Sodium Ion Concentration as Cause of Tetany. W. Denis and L. von Meysenbug, New Orleans.—p. 47.

*Glucokinin. J. B. Collip, Edmonton, Alberta.—p. 65.

Age and Chemical Development in Mammals. C. R. Moulton, Chicago.—p. 79.

Study of Condition of Several Inorganic Constituents of Serum by Means of Ultrafiltration. B. S. Neuhausen and J. B. Pincus, Baltimore.—p. 99.

*New Permanent Standard for Estimation of Hemoglobin by Acid Hematin Method. E. E. Osgood and H. D. Haskins, Portland, Ore.—p. 107.

*New Permanent Standard for Sahli's Hemoglobinometer. H. D. Haskins, Portland, Ore.—p. 111.

*Diet and Borderline of Acetonuria. R. S. Hubbard and F. R. Wright. Clifton Springs, N. Y.—p. 115.

*Studies in Nuclein Metabolism. I. Adenine Nucleotid in Human Blood. H. Jackson, Jr., Boston.—p. 121.

*Color Test for Water Soluble B Vitamin. A. Jendrassik, Baltimore.—p. 129.

Changes in Proteins and Gelatification of Formalized Blood Serum. R. R. Henley, Washington, D. C.—p. 139.

*Extraction of Vitamins from Yeast and Rice Polishings with Various Water-Miscible Solvents. C. Funk, B. Harow and J. B. Paton, New York.—p. 153.

Studies of Autolysis. IX. Hydrogen Ion Concentration in Autolysis. E. L. Sevringhaus, A. E. Koehler and H. C. Bradley, Madison, Wis.—p. 163.

Postmortem Acidity. I. Acids Formed in Autolyzing Liver. E. L. Sevringhaus, Madison, Wis.—p. 181.

Analysis of Tuberculinic Acid. E. E. Brown and T. B. Johnson, New Haven, Conn.—p. 199.

*Microcolorimetric Method of Estimating Hydrogen Ion Concentration of Blood. V. C. Myers, H. W. Schmitz and L. E. Booher, New York.—p. 209.

Effect of Therapeutic Application of External Heat on Acid Base Equilibrium of Body. F. A. Cajori, C. Y. Crouter and R. Pemberton, Philadelphia.—p. 217.

Determination of Fibrinogen by Precipitaton with Sodium Sulphate Compared with Precipitation of Fibrin by Addition of Calcium Chlorid. P. E. Howe, Princeton, N. J.—p. 235.

Relative Precipitating Capacity of Certain Salts When Applied to Blood Serum or Plasma and Influence of Cation in Precipitation of Proteins. P. E. Howe, Princeton, N. J.—p. 241.

*Studies in Inorganic Metabolism. I. Influence of Cod Liver Oil on Calcium and Phosphorus Metabolism. B. Sjollema, Utrecht, Holland.—p. 255.

Studies in Inorganic Metabolism. II. Influence of Crude Fiber and of Protein on Calcium and Phosphorus Metabolism. B. Sjollema, Utrecht, Holland.—p. 271.

*Studies of Thyroid Apparatus. XVII. Effect of Thyroparathyroidectomy and Parathyroidectomy at 100 Days of Age on Calcium, Magnesium and Phosphorus Content of Ash of Humerus and Femur of Male and Female Albino Rats. F. S. Hammett, Philadelphia.—p. 285.

*Experiments on Utilization of Calcium of Almonds by Man. M. S. Rose and G. MacLeod, New York.—p. 305.

Study of Excretion of Hippuric Acid.—A study was made by Griffith and Lewis of the rate of excretion of hippuric acid in rabbits during a six hour period after the oral and intravenous administration of sodium benzoate in doses of approximately 1 gm. of benzoic acid per kilogram of body weight. The rate of excretion was decidedly increased by the administration of glycin with sodium benzoate, probably representing an increased rate of synthesis of hippuric acid due to the presence in the organism of large amounts of performed glycin. Other amino-acids did not increase the rate of synthesis of hippuric acid when administered with the benzoate.

Influence of Positive Nitrogen Balance on Creatinuria.—As a result of a study of the excretion of creatin in children when on high protein diets, Harding and Gaebler had come to believe that there existed a definite maximum production of creatin. As a matter of fact, their experiments showed that the maximum creatin production corresponds to the maximum positive nitrogen balance. Creatin excretion in the growing dog under conditions of constant nitrogen intake varies inversely with the height of the nitrogen gain. Catabolized protein per se cannot be considered as the origin of creatin.

Alkalosis Cause of Tetany.—In a series of experiments planned to throw light on the cause of the tetany following excessive sodium bicarbonate administration, it was found by Denis and Meysenbug that when sodium bicarbonate was introduced into dogs by intravenous injection there followed, when the dosage was sufficiently large, various twitching and jerking movements, together with an increased irritability to electrical stimuli. Examination of the blood serum indicated a slight lowering of the calcium content, and an increase in the sodium, carbon dioxid and hydrogen ion concentration. When sodium chlorid or sodium sulphate was injected in place of the bicarbonate, "convulsions" similar to those mentioned, invariably appeared, but a determination of the electrical reactions showed that in these animals a normal or a decreased irritability prevailed. Examination of the blood serum showed an increased sodium content and a decrease in calcium, carbon dioxid and hydrogen ion concentration. These results, therefore, make it seem improbable that the spasmophilic condition following excessive sodium bicarbonate injection is due to "sodium poisoning," but rather to an abnormal carbonic acid: sodium bicarbonate ratio.

Glucokinin.—Further observations on the effects of plant extracts on blood sugar are recorded by Collip. A totally depancreatized dog was kept alive sixty-six days. The animal received three injections of glucokinin (onion extract). Lawn grass as a source of glucokinin has been found to give satisfactory results.

Estimating Hemoglobin by Acid Hematin Method.—While investigating various hemoglobin methods Osgood and Haskins found the acid hematin modification of Palmer's method very satisfactory in as far as accuracy of estimation is concerned. They have devised a standard solution containing inorganic material only, which if set at 15 mm. in a colorimeter will match the color of a 1 per cent. acid hematin solution set at 10 m.m. (a 1 per cent. solution being a 1:100 dilution in weak hydrochloric acid of blood containing 13.8 gm. of hemoglobin in 100 c.c.). The intensity of the color varies with change in temperature, but this is taken into account in the calculation. The final standard contains 32 gm. of ferric sulphate and 80 mg. of chromic sulphate in 100 c.c.

Permanent Standard for Sahli's Hemoglobinometer.—Haskins prepared a permanent standard from inorganic material that has shown no change in ten months. It is made by mixing 50 c.c. of ferric sulphate solution (containing 53.3 gm. in 100 c.c.), 15 c.c. of cobalt sulphate solution (10 gm. cobalt sulphate containing 7 molecules water of hydration in 100 c.c.), and 10 c.c. of water.

Diet and Borderline of Acetonuria.—Diets containing between 1 and 2 molecules of ketogenic for each molecule of antiketogenic material were fed by Hubbard and Wright to four arthritic subjects, and the amount of the acetone bodies excreted in the urine was determined. While there was an excretion of the acetone bodies, the amounts found were small and could be explained by Shaffer's theories of ketogenesis.

Adenin Nucleotid in Blood.—Evidence is presented by Jackson to show that adenin nucleotid exists in human blood in appreciable quantities, and a simple method is described whereby this portion of the undetermined nitrogen may conveniently be determined.

Color Test for Vitamin B.—The color reaction for the vitamin B as used by Jendrassik is carried out as follows: To the concentrated aqueous solution of the preparation in question acetic acid is added to make the concentration about 2 per cent. The reagent is freshly prepared by mixing equal volumes of tenth molar ferric chlorid and potassium ferricyanid solutions. The reagent is added as long as the depth of the blue color increases. The test tube containing the mixture is stoppered and allowed to stand ten minutes, when the color is observed. From one to five volumes of distilled water are added to reach a convenient dilution and the color is again observed. If there is not a distinct blue color, or if after standing for some time a bright blue precipitate, the test is negative.

Alcohol Is Best Solvent for Vitamins.—If inactivity of residue be taken as a criterion, then, according to Funk, Harrow and Paton, 70 per cent. alcohol has proved to be the best solvent for vitamin among the solvents used. If, however, not only the high degree of activity of the extract, but also the low proportion of nitrogenous and other impurities are

stressed accompanying the vitamin, then the best among the solvents is acetone.

Microcolorimetric Method of Estimating Hydrogen Ion Concentration of Blood.—The colorimetric method of Cullen for the determination of the hydrogen ion concentration of blood plasma has been adapted by Meyers et al. to the bicolorimeter. By a simple technic, contact of the blood with air is entirely excluded. The final determination is carried out on 0.1 c.c. of plasma, and requires less than ten minutes after the blood has been obtained. The error in color comparison falls within ± p_H 0.02.

Influence of Cod Liver Oil on Calcium-Phosphorus Metabolism.—Sjollema's experiments on rabbits show that as the result of administration of cod liver oil the calcium-phosphorus loss is decreased when the calcium balance is negative, and that when it is positive, the retention is increased. In the first case, it is principally the fecal calcium output, in the second, it is the urinary output that is decreased. Cod liver oil diminishes the production of feces if the calcium output greatly surpasses the intake, that of urine if the diet is rich in calcium. There is reason for the supposition that the fat soluble A (or the specific vitamin of cod liver oil) prevents the consequences of diets deficient in this dietary factor through the influence it has on the mineral metabolism. The total output of phosphorus is independent of the amount of calcium present in the food.

Effect of Thyroparathyroidectomy and Parathyroidectomy on Bone.—Data are presented by Hammett which, he says, justify the belief that the decrease in calcium percentage of the ash of the bones of the female thyroparathyroidectomized and parathyroidectomized rats is due to a combination of parathyroid deficiency and ovarian dystrophy, the latter probably being the determining factor acting on a substratum already weakened as to its calcium-retaining ability by the toxemia produced by the lack of the function of the parathyroids.

Almonds a Source of Calcium.—On the whole, it would appear from Rose and MacLeod's experiments that almonds contribute efficiently to the calcium of the diet, but when a very high proportion of the calcium comes from almonds the conditions in the digestive tract may not be quite so favorable for economical utilization as when carrots or milk form the main source of the calcium.

Journal of Metabolic Research, Morristown, N. J.

3: 201-371 (Feb.) 1923

*Relations Between Fertility and Nutrition. III. Normal Reproductive Performance of Rat. H. McL. Evans and K. S. Bishop, Washington, D. C.—p. 201.
Production of Sterility with Nutritional Regimens Adequate for Growth and Its Cure with Other Foodstuffs. H. McL. Evans and K. S. Bishop, Washington, D. C.—p. 233.
*Fasting and Diets in Treatment of Epilepsy. D. F. Weeks, D. S. Renner, F. M. Allen and M. B. Wishart, Morristown, N. J.—p. 317.
Distribution of Sulphur in Protein-Free Milk. B. Sure and R. E. O'Kelley, Fayetteville, Ark.—p. 365.

Relations Between Fertility and Nutrition.—The classic "basic ration" (casein-lard-corn-starch mixture) used by Evans and Bishop for studies on growth fails to give normal fertility in a large proportion of female rats reared on this diet. The sterility produced does not interfere with the early steps in gestation. The ovulation and implantation incidence is normal, but most of the implantations are resorbed (from 80 to 100 per cent.). In two clear instances of proven sterility, fertility was restored by a beneficial food (leaves, high milk fat) given after ovulation had occurred. The sterility may either be prevented or cured after its appearance in any individual case by the addition of certain natural foodstuffs to the basic ration. Lettuce, meat, whole wheat, wheat germ, rolled oats, dried alfalfa and large quantities of milk fat are such curative substances. Whole milk, fresh or dried, cod liver oil, orange juice and yeast fail to act as curative agents when added to the basic diet. The sterility was not influenced by certain changes in the quality or quantity of the protein in the basic action. There is no evidence that the salt content of the basic ration is at fault. Varying the proportions of fat and carbohydrate in the ration has not influenced the specific sterility deficiency disease. The unknown fertility conferring factor (X), shown to be present in lettuce, meat, wheat, oats, alfalfa and milk fat, cannot be identified with the known vitamins A, B, C or D. The factor X, does not seem to be stored for long periods in the animal body, and is resistant to ordinary cooking temperatures.

Fasting and Diets in Treatment of Epilepsy.—The therapeutic value of fasting was tried by Weeks and his associates in epileptic patients for three weeks. Epileptic seizures ceased during the fast in only thirty out of sixty-four instances, but, in general, the observations confirm those of previous writers that the attacks are more or less diminished during this time. The authors interpret this result as an accidental phenomenon, such as can easily be produced in epileptics by a variety of psychic and other influences, not as a genuine therapeutic benefit. This interpretation based on clinical experience is strenghtened by the unchanged progress of the epilepsy after termination of the fast, and also by the effects of special diets. If fasting really benefits epilepsy, it was assumed, as a corollary, that one or more forms of food must be harmful to epilepsy. Diets of nonnutritive bulk, high protein, high carbohydrate, high fat and high total calories were found to be neither harmful nor beneficial. These diet tests have afforded no indication of a metabolic element in epilepsy. On the practical side, the most important conclusion is that any kind of healthful mixed diet may be used in the management of epilepsy. The group used for this study has included various degrees and stages of epilepsy. The most important observations, theoretically, were the astonishing tolerance of these patients for one sided fat diets, without serious acidosis or clinical symptoms, and still more the remarkable hyperglycemia which developed in every case on high fat diet and not with any of the other diets.

Maine Medical Association Journal, Portland

14: 1-26 (Aug.) 1923

Transcript of Proceedings at Seventy-First Annual Meeeting.—p. 1.

Nebraska State Medical Journal, Norfolk

8: 221-260 (July) 1923

Present Status of Treatment of Diabetes Mellitus. A. D. Dunn, Omaha.—p. 221.
Focal Infection of Dental Origin and Principles Governing its Removal. W. L. Shearer, Omaha.—p. 235.
Report on Radium Therapy. E. J. Angle, and L. J. Owen, Lincoln.—p. 236.
Episiotomy and Its Repair. W. Shepherd, Rulo.—p. 240.
Specific Hypersensitiveness or Allergy as Common Cause of Illness. W. W. Duke, Kansas City, Mo.—p. 241.

Philippine Journal of Science, Manila

23: 123-236 (Aug.) 1923

Eels of Philippine Archipelago. A. W. C. T. Herre, Manila.—p. 123.

Public Health Journal, Toronto

14: 339-386 (Aug.) 1923

Research on Mental Hygiene. E. D. MacPhee.—p. 339.
Schick Test and Active Immunization Against Diphtheria. J. Roberts. —p. 347.
Vital Statistics. S. J. Manchester.—p. 356.

Southern Medical Journal, Birmingham, Ala.

16: 571-646 (Aug.) 1923

*Current Conceptions of Etiology and Pathogenesis of Tetany. L. F. Barker, Baltimore.—p. 571.
Diagnosis and Treatment of Tetany. S. R. Roberts, Atlanta.—p. 576.
*Value of Glucose Tolerance Test in Diagnosis of Malignant Growths of Digestive Tract. S. K. Simon and J. H. Smith, Jr., New Orleans.—p. 582.
Cancer of Stomach: Review of Fifty Cases Proven Operatively and Pathologically. J. B. Fitts, Atlanta.—p. 587.
*Renal Glycosuria: Report of Three Cases. I. I. Lemann, New Orleans.—p. 592.
Practical Points on Purgation. L. W. Elias, Asheville, N. C.—p. 597.
*Diphtheria with Unusual Complications. A. G. Jacobs, Memphis.—p. 602.
Fractures of Neck of Femur. D. Eve, Sr., Nashville.—p. 606.
General Treatment of Fractures; Fracture of Femur., E. T. Newell, Chattanooga.—p. 608.
Treatment of Fractures of Upper End of Humerus. J. N. Baker, Montgomery, Ala.—p. 611.
Deep Roentgen-Ray Therapy in Treatment of Metastatic Pain in Carcinoma of Prostate. C. A. Waters and J. W. Pierson, Baltimore.—p. 620.
*Case of Abdominal Pregnancy at Sixteen Months. H. S. Geiger, Kissimmee, Fla., and J. S. McEwan, Orlando, Fla.—p. 622.

Routine Procedure in Eye-Ball Affections. R. Caldwell, Little Rock, Ark.—p. 623.
Review of Thirty-Two Cases of Endoscopy. E. W. Carpenter, Greenville, S. C.—p. 629.
Private Nursing Homes. S. R. Miller, Baltimore.—p. 633.
University Campus Hospital. W. White, Atlanta.—p. 636.

Etiology and Pathogenesis of Tetanus.—This review by Barker of contemporary studies of the metabolism in tetany makes it clear that students of the disease are endeavoring through their researches to forge the links in the pathogenetic chain that connects parathyroid deficiency with hyperexcitability of the nervous system. Intoxication by guanidin bases, disturbance of acid-base equilibrium, or disturbances of the relative proportions of antagonistic cations in the blood and tissue fluids, may prove to be among the links. Once the links that constitute the pathogenetic chain in the development of tetania parathyreopriva have been determined, students will endeavor to ascertain whether the other forms of tetany can be demonstrated to possess similar links in their pathogenetic chains. Certain of these forms may conceivably be entirely independent of any primary disorder of the parathyroid glands or of any disturbance of parathyroid functions, for pathologic processes may easily be thought of as becoming interpolated at the level of any one of the series of links in the parathyroid-nervous system chain, sometimes, perhaps, closer to the parathyroids, sometimes closer to the nervous system, sometimes in a more intermediate position between parathyroid function and neural disturbance. For example, in the tetany of hyperpnea coming on, say, after a few minutes of forced respiration in health or of spontaneous hyperpnea in disease, it is scarcely conceivable that the parathyroid function can be concerned at all. It would seem much more likely that the change here sets in as an alkalosis link, whereas in the tetany of chronic diarrheas, accompanied by increased calcium excretion in the feces, it may set in as a cation antagonism link. For a long time the clinic made progress by attempting to corroborate Pineles' conception of a unitary pathogenesis of tetany. For the time being, Barker feels it may be well to attempt to refute the unitary conception by establishing the existence of different pathogenetic chains or by determining the possibility of intervention of special processes at the level of the different links in a single chain.

Value of Glucose Tolerance Test in Diagnosis of Carcinoma.—The glucose tolerance test was carried out by Simon and Smith in forty-five cases, in fifteen of which the diagnosis of carcinoma was definitely proved. Nine of these fifteen patients gave a typically high sustained curve; in one case a high but atypical sustained curve was present. Thus a total of 66.666 per cent. gave a sustained typical or atypical curve among cancer patients. One case of pulmonary tuberculosis likewise furnished a Type I sustained curve. A new type involving a relatively low percentage of blood sugar at the forty-five minute reading, which was sustained to the end of the two-hour period, was observed. The type is not believed to be of significance in the diagnosis of malignancy.

Renal Glycosuria.—Lemann summarizes his cases thus: Male, aged 21, was observed for six years. His pulmonary tuberculosis progressed to cavitation and then to apparent arrest. While on full diet he showed inconstant traces of sugar in his urine, with normal blood sugar, and when submitted to a glucose tolerance test he showed a low renal threshold, but a normal blood sugar curve. He has at no time showed any symptoms of diabetes mellitus. A child observed during three years, from the age of 3 to 6, constantly exhibited amounts of sugar in the urine irrespective of diet. He meanwhile went through one infectious disease. His blood sugar is normal, and he has shown no symptoms of diabetes. His weight has increased from 33 to 42 pounds. A male, aged 20, has been observed for a year, during which time his urine contained small amounts of sugar without respect to the diet. His blood sugar is normal and his glucose tolerance is normal. There are no manifestations of true diabetes. There is apparently a familial sensitiveness of the renal threshold. The substance observed in all these urines reduces copper, ferments and yields with phenylhydrazin osazone crystals of characteristic melting point. It usually is present in amounts not sufficiently large to permit a polariscopic reading.

Gangrene of Leg Complicates Diphtheria.—Jacobs reports a case of dry gangrene of the lower half of the left leg from thrombosis of the popliteal artery occurring on the sixteenth day of an attack of diphtheria and necessitating amputation. The case is said to be the fifth to be reported in America.

Abdominal Pregnancy with Death of Fetus.—In the case reported by Geiger and McEwan medical advice was not sought until six months after the death of the full term fetus. Labor failed to set in at the expected time. Menstruation returned and was apparently normal. There had been at no time any unusual bleeding from the uterus. The abdominal enlargement became somewhat less, and the woman lost considerably in weight and strength. A mass occupied the entire abdomen, the size and contour corresponding to that of an eight months' pregnancy. There were no irregularities of the surface. There was considerable tension, but fluctuation could not be elicited. Nothing corresponding to fetal parts could be palpated, except in the right iliac region, where a small, apparently bony, protuberance could be felt. The consistency of the mass was something less than that of a pregnant or fibroid uterus. Vaginal examination was negative, the cervix being firm and normally placed. It being impossible to separate the sac from the intestine, owing to the adhesions, the sac was opened and about 3 quarts of brownish fluid, having the odor of stale urine, was removed by aspiration. A dead, macerated fetus was delivered. The male infant was well developed and at full term, weighing 6¾ pounds; length, 19 inches, with long, black hair and fully developed finger nails.

Surgery, Gynecology and Obstetrics, Chicago

37: 127-206 (Aug.) 1923

*Gastric Syphilis: Report of Two Cases Proved Anatomically. W. A. Brams and K. A. Meyer, Chicago.—p. 127.
*Syphilis of Stomach. J. W. Larimore, St. Louis.—p. 133.
Case of Syphilitic Obstruction of Esophagus. F. B. McMahon, Milwaukee.—p. 141.
Gastro-Enterostomy. J. B. Deaver, Philadelphia.—p. 144.
*Surgical Significance of Mesenteric Lymphadenitis. L. Freeman, Denver.—p. 149.
*Experimental Anatomic Investigation of Blood and Bile Channels of Liver. H. N. Segall, Montreal.—p. 152.
Segmental Resection of Bladder for Neoplasm. J. B. Squier, New York.—p. 179.
Strangulated Diaphragmatic Hernia of Traumatic Origin. Report of Case. J. L. Crook, Jackson, Tenn.—p. 185.
Fractures of Fifth Metatarsal. Report of Six Cases. F. Christopher, Chicago.—p. 190.
Papilloma of Posterior Urethra Cause of Profuse Hemorrhage and Urinary Retention. E. Davis, Omaha.—p. 194.
*Congenital Rectal Stricture as Cause of Infantile Megacolon. V. C. David, Chicago.—p. 197.
*Hysterectomy in Certain Cases of Pulmonary Tuberculosis; Particularly as Alternative for Therapeutic Abortion. J. F. Baldwin, Columbus, Ohio.—p. 201.
*Blood Pressure in the New-Born Following Normal and Pathologic Labor. R. A. Reis and A. J. Chaloupka, Chicago.—p. 206.
Cholecystectomy without Drainage. W. A. Coventry, Duluth.—p. 212.
Technic for Resection of Gastric and Duodenal Ulcers. E. S. Judd and F. W. Rankin, Rochester, Minn.—p. 216.
*Citrate Versus Unmodified Blood Transfusion. M. Lederer, Brooklyn.—p. 221.
Treatment of Dislocated Semilunar Carpal Bones. G. G. Davis, Chicago.—p. 225.
Intestinal Clamp with Detachable Handle. L. Davis, Boston.—p. 230.

Syphilis of Stomach.—The clinical evidence of gastric syphilis, as noted by Brams and Meyer in the two cases cited, consists of pain in the epigastrium, low acidity, marked emaciation, history or evidence of syphlitic infection, and a good result with specific treatment. The patient is often under the usual age for carcinoma and the course often extends over a period of years. The anatomic features are multiple, irregular ulcers; thick submucosa; vascular changes; miliary gummata, and perivascular and diffuse infiltrations in which the predominating element is the lymphocytes.

Syphilis of Stomach.—Eight cases are recorded by Larimore. Consideration of these cases in connection with the previous literature emphasizes the following points: Gastric syphilis manifests a variable symptomatology, a chemistry and roentgen-ray findings that cannot consistently be those of other gastric disease. The presence elsewhere of undoubted signs of syphilis supports the diagnosis of syphilis of the stomach; when such signs are absent, great care must be used in making that diagnosis. Successful medical treatment is diagnostic

only in early gastric syphilis. Restoration to normal gastric motility cannot be expected in well advanced gastric syphilis. Surgery is indicated in late cases with permanent impairment of the gastric motor function. It is indicated by the clinical course and by the roentgen-ray findings. Resection of the prepyloric stomach is the preferred operation. In four of Larimore's cases an operation was performed. In three cases gastric resections yielded excellent clinical results. In the fourth case a resection at a secondary operation gave a good clinical result. This case was the only one of this group which showed good gastric motility by roentgen-ray examination, although showing clinically a food stasis. The microscopic pathologic report in two cases was gumma, and in the two others it was chronic inflammatory disease.

Mesenteric Lymphadenitis.—The form of lymphadenitis discussed by Freeman is characterized by the presence of numerous small, soft nodes in the mesentery of the small intestine, especially of the lower ileum. They seldom are much larger than a large pea, are quite uniformly soft, and without external evidence of acute inflammation. The condition is a common disease of children and young adults. The infecting agent in many instances is the tubercle bacillus, presumably of the bovine type. The most prominent symptoms are: moderate pain, tenderness and rigidity, mostly in the right lower quadrant of the abdomen, often associated with slight fever, headaches, occasional colics, various gastro-intestinal symptoms, and loss of weight and energy. The disease is nearly always confused with appendicitis. Because surgeons are unfamiliar with the trouble, it is seldom recognized during operations. It has a strong tendency toward recovery, at least symptomatically, following laparotomy.

Anatomic Investigation of Blood and Bile Channels in Liver.—The injection technic of Gross, as applied to injecting the blood and bile channels of the liver, is described by Segall. The average normal and some anomalous types of extrahepatic branching of the arteria hepatica are described from the study of fifty-five livers. The distribution of the intrahepatic branches of the rami dexter and sinister, arteria hepatica propria and of the arteria cystica, is fully described from the study of thirty-seven preparations. The anastomoses which form the path of collateral circulation between diaphragmatic and hepatic arteries are described. The intrahepatic and extrahepatic courses of the bile ducts are described from a study of six preparations. Arterial blood is absolutely essential to the nutrition of liver substance. Complete obstruction of either the ramus dexter or ramus sinister, arteriae hepaticae propriae, does not effect any change in the liver substance normally supplied by the blocked vessel. The abundant anastomoses which afford the efficient collateral circulation in such cases are described. The conclusions of Haberer with regard to surgical ligation of the hepatic artery, Segall says, are also true for man because of the close resemblance between the arterial circulation of the human liver and that of the dog and cat.

Congenital Rectal Stricture Causes Megacolon.—The three cases cited by David emphasize the importance of purely mechanical factors in the production of megacolon which in two instances, at least, simulated very closely the clinical picture of Hirschsprung's disease. The relief of this mechanical obstruction by appropriate operative measures resulted in prompt regression of the megacolon.

Hysterectomy in Cases of Pulmonary Tuberculosis.—In properly selected cases of pulmonary tuberculosis with pregnancy as a complication, or relatively too profuse or frequent menstruation, particularly in the presence of traumatism from childbearing, or uterine hyperplasia, a panhysterectomy, with, as a rule, saving of the appendages if the patient is young, Baldwin asserts, will remove a most serious handicap and give the patient the best possible opportunity to attain recovery from the primary disease.

Blood Pressure in the New-Born.—The 100 cases studied by Reis and Chaloupka include 55 cases following normal spontaneous deliveries in normal gravidae: 10 cases of low forceps, 6 cases of midplane forceps, 1 breech delivery, 6 cases of version and extraction, 1 face presentation, 2 cases of abdominal cesarean section, 2 premature infants, 6 sets of twins, and 5 cases showing unusual variations. The average systolic blood pressure during the first day of life in full-term infants following normal spontaneous labor was found to be 43 mm. mercury. The blood pressure increases daily until, on the tenth day of life, the average systolic blood presure is 78 mm. The greatest rise is during the first three days. The blood pressure varies with the birth weight, being higher in heavier infants. Sex, jaundice, pulse rate and temperature and caput succedaneum with no signs of compression, apparently, have no influence on the blood pressure. Infants delivered by abdominal cesarean section have normal blood pressures. Premature infants have low systolic blood pressures corresponding to the length of gestation. Twins have low blood pressure readings proportional to the prematurity and the birth weight. The greatest increase in blood pressure is shown after midplane forceps extraction and version extraction; lesser increases were shown after low forceps extractions, relatively dry labors, prolonged second stages and in infants with large cephalic measurements. The increased blood pressures found seem to be due directly to increased trauma to the fetal head.

Citrate Versus Unmodified Blood Transfusion.—Posttransfusion reaction is defined by Lederer as a sharp rise in temperature, accompanied or unaccompanied by subjective or objective symptoms, not attributable to any cause except the transfusion. Reactions followed in 49.5 per cent. of forty-seven cases transfused by the citrate method, as compared to no reaction after forty-nine unmodified blood transfusions. Mutual testing for incompatibility is regarded as being preferable to blood grouping.

Texas State Journal of Medicine, Fort Worth

19: 211-264 (Aug.) 1923

Weight During Pregnancy. C. R. Hannah, Dallas.—p. 224.
Scopolamin-Morphin Anesthesia in Obstetrics: Its Advantages and Limitations. F. W. Phifer, Wheatland, Wyo.—p. 226.
Alleviation of Pain in Labor. W. B. McKnight, Mansfield.—p. 231.
Indications for Cesarean Section: Podalic Version. J. Gilbert, Austin. —p. 232.
Cesarean Section. L. Mackechney, Wichita Falls.—p. 236.
*Infant Mortality in Cities of Texas. J. H. Davis, Fort Worth.—p. 238.
Nutrition in Early Infancy. R. C. Spence, Dallas.—p. 240.
Few Suggestions in Difficult Feeding Cases. R. C. Ferguson, Eastland. —p. 242.
Circulatory, Respiratory and Nervous Disturbances in New-Born. G. B. McFarland, Dallas.—p. 245.
*Ovarian Cysts in Children. H. T. Wilson, San Antonio.—p. 248.
Anoxemia During Anesthesia. N. Klein, Texarkana.—p. 249.

Infant Mortality and Birth Rate in Texas Cities.—Davis gives the birth rate and infant mortality rate of seventeen cities of Texas, and, apparently, the latter rate is greatly in excess of the former in each of these cities. In reality, however, the reason for this discrepancy is the failure to report all births. Davis urges that all births be recorded; that all midwives be licensed and inspected. To lower the death rate: insist on the proper prenatal care of the mother; foster health centers and medical school inspection; boil the water, if its purity is questioned; have adequate milk inspection, including cows, dairies in general and creameries; educate the mother to prepare the baby's food properly; teach parents how to dress their children. The attending physician must be more careful in his examination, diagnosis and treatment of children.

Cyst of Ovary in Child.—Wilson's patient was 6 years of age. Her sole complaint was of pain in the left lower quadrant of the abdomen. Physical examination was negative, except that the left lower quadrant was more tender than the right. On the third day, the abdomen became slightly distended and tenderness was more marked, though still not localized. On opening the abdomen, the peritoneum was found to contain a small amount of slightly cloudy fluid, definitely blood stained. The small intestine was considerably distended. No inflammatory exudate was noted. The distention of the intestine appeared to be caused by the intestine having been forced through recently made openings in the omentum, the omentum being held in a fixed position by something anchoring its lower edge in the pelvis. These adhesions were found to be posterior to the adnexa on the left side. When these were loosened, the constricting effect of the omentum on the intestine above was relieved. Pelvic exploration revealed a mass about the size of a lemon on the left side. This was gangre-

nous and already becoming necrotic in parts. It was found to be an ovarian cyst, the pedicle of which had become twisted (four times), strangulating the fallopian tube as well as the ovary.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

2: 347-398 (Sept. 1) 1923

2: 347-398 (Sept. 1) 1923. Educational Number

Permeation of Medical Curriculum by Preventive Teaching. G. Newman.—p. 347.
Teaching of Obstetrics and Gynecology. J. S. Fairbairn.—p. 349.

Calcutta Medical Journal

17: 97-144 (March) 1923

Electrometric Determination of Alkali Reserve of Blood and Its Significance in Diabetes. B. C. Roy and H. N. Mukherjee.—p. 97.
*Study of Blood Sugar in Bengalees in Health and in Kala-Azar. D. N. Banerjee and J. C. Saha.—p. 109.
Main Principles of Cardiologic Practice. S. C. Bose.—p. 115.
*Case of Kala-Azar with Fatal Bleeding. M. N. De.—p. 120.
Early Tabes. Neuralgic Type. S. C. Bose.—p. 121.

Low Blood Sugar in Kala-Azar.—The main fact emerging from Banerjee and Saha's work is that there is a fall in blood sugar in kala-azar. It has been found as low as 0.031 per cent. It appears that in Bengalees the blood sugar average is 0.103 per cent.

Cancrum Oris with Kala-Azar with Fatal Hemorrhage.—In De's case there was an intensely foul smelling sloughing ulcer in the mouth between the gum and the tongue involving nearly the whole of the left side. The skin over the area was swollen, indurated and inflamed. The case was one of kala-azar with cancrum oris. The patient as well as the lesion improved under appropriate local treatment. Suddenly on the fifth day of treatment, she began to spit out a little sanious saliva. In a minute or two, it changed into a continuous stream of blood. In spite of treatment—calcium chlorid, horse serum, epinephrin, tamponade, etc—the hemorrhage continued for about twenty-five minutes when exitus took place. The hemorrhage was not from any particular vessel but was a sort of generalized oozing from the whole of the ulcerated surface.

International Journal of Psycho-Analysis, London

6: 1-269 (Jan.-April) 1923

Certain Neurotic Mechanisms in Jealousy, Paranoia and Homosexuality. S. Freud.—p. 1.
Castration Complex in Formation of Character. F. Alexander.—p. 11.
The Tempest. H. Sachs.—p. 43.
Relation of Beating Phantasies to Day-Dream. A. Freud.—p. 89.
Rôle of Exceptional Organ in Neurosis. C. P. Oberndorf.—p. 103.
Case of Affective Inhibition of Intellectual Process. J. C. Flugel.—p. 111.
Urethral Erotism and Obsessional Neurosis. E. Hitschmann.—p. 118.
Anxiety and Birth. E. Jones.—p. 120.
Slip of Tongue. D. Bryan.—p. 121.
Interesting Analytical Hour. A. Stern.—p. 123.
The Automobile Symbol of Male Potency. S. Spielrein.—p. 128.
Dreams and Visions of Shooting Stars. S. Spielrein.—p. 129.
Slips of Tongue in Norse Sagas. C. A. Seyler.—p. 133.

Irish Journal of Medical Science, Dublin

145-192 (June) 1923

Work of Venereal Disease Treatment Center. T. P. C. Kirkpatrick.—p. 145.
Cases of Streptococcal Infection and Carcinoma of Stomach. J. Moore.—p. 155.
*Treatment of Urate Calculi by Therapeutic Immunization. W. M. Crofton.—p. 160.
Case of Intestinal Occlusion in Tuberculous Peritonitis. Wm. Doolin.—p. 165.
*Ascaris Appendicitis. K. Portley.—p. 169.

19: 193-240 (Aug.) 1923

Scleroderma in Child. H. C. Dryry.—p. 193.
Clinical Aspects of Wassermann Reactions. J. H. Pollock.—p. 199.
Recent Research on Uric Acid and Purin Metabolism. W. Fearon.—p. 205.

Treatment of Urate Calculi by Therapeutic Immunization.—Crofton asserts that if ordinary cases of gout are treated with their gastro-intestinal micro-organisms, they react at the site of these lesions, indicating microbial infection, and that by immunization these lesions can be cleared up and the whole condition cured. Gout to him is a rheumatic condition complicated by the formation of an abnormal amount of uric acid with the conversion of the soluble into insoluble urates at the site of rheumatic inflammation. The abnormal production of uric acid can be stopped and the inflammation in the joints and tendons, and so forth, cleared up.

Ascaris Appendicitis.—Portley reports a case in which she found wandering free in the peritoneal cavity a worm about 6 inches in length of the *Ascaris lumbricoides* type. There was no sign of perforation of the intestine, but on closer examination the ascaris was found to have made its exit from the alimentary canal by perforating the tip of the appendix. This organ was inflamed, but not greatly. From the absence of an acute peritonitis it was concluded that the ascaris must have only just arrived in the peritoneal cavity. The patient had previously manifested symptoms on which a diagnosis of appendicitis was based.

Journal of State Medicine, London

31: 351-400 (Aug.) 1923

*Ultramicroscopic Viruses. F. W. Twort.—p. 351.
Industrial Hygiene. L. Macassey.—p. 367.
Prevention of Venereal Disease: Policy of Immediate Self-Disinfection: Its Progress Towards Victory. H. W. Bayly.—p. 379.

Ultramicroscopic Viruses.—Two important points are emphasized by Twort. Experiments with certain lysins show that these may increase in quantity, and may show characters not dissimilar to those presented by an ultramicroscopic virus. The assumption, therefore, that these viruses must be definite living structures of a bacterial nature, because they increase in quantity in the host, has been proved to be unjustifiable. There remains also the important fact that the existence of forms of life more primitive than the bacterium, which theoretically must be considered to exist as particulate bodies, cannot be demonstrated. These two points, in conjunction with many others to which allusion is made, undoubtedly indicate that an ultramicroscopic virus belongs to one or more of those forms of life which in the scale of evolution are situated between the simple enzymes and the bacteria.

Journal of Tropical Medicine and Hygiene, London

26: 251-260 (Aug.) 1923

Common Occurrence of Pseudospirochetes in Blood of Blackwater Fever Cases, and of Normal Human Beings and Animals When Using Technic of Blanchard and Lefrou. J. G. Thomson.—p. 251.
*Intestinal Bilharziasis in West Indies. Snail as Intermediate Host. S. B. Jones.—p. 253.

Intestinal Bilharziasis in West Indies.—Intestinal bilharziasis, according to Jones, is threatening to destroy the vitality of the inhabitants of the West Indies, both white and black. It is present in Guadeloupe, French St. Martin, St. Kitts, probably Antigua, and in Santo Domingo and Porto Rico. The mollusc which serves as the intermediate host in French St. Martin and probably in St. Kitts also is one of the *Planorbidae*, sp. *antiguensis*, Reeve. Wherever West Indian islands contain small streams or rivers which are likely to dry up and become stagnant pools in times of dry weather, and at the same time one or more species of the snail *Planorbidae* is present, the disease, if not now in existence, will be introduced in time through the movement of population from one island to another. The prompt treatment of all infected cases, in conjunction with the eradication of all species of the snails *Planorbidae* from the streams, are public health problems which should engage the attention of all West Indian governments, irrespective of nationality.

Lancet, London

2: 317-370 (Aug. 18) 1923

*Thermal Death Point of Tubercle Bacillus in Milk. F. W. C. Brown.—p. 317.
Antenatal Diagnosis. F. M. Huxley.—p. 321.
Diaplyte Tuberculin. C. Riviers.—p. 324.
Three Cases of Bilateral Renal Calculus. C. Noon.—p. 325.
Duodenal Diverticula. Case of Gangrenous Diverticulitis. G. P. B. Huddy.—p. 327.
Relation of Carcinoma to Infection. W. M. Robertson.—p. 330.

Thermal Death Point of Tubercle Bacillus in Milk.—Brown found that by using twenty-five strains of the tubercle bacillus no wide difference in thermal death point is found. The

thermal death point of this organism is practically similar for human and bovine types. If a temperature of 60 C. be used, it requires twenty minutes' exposure to this degree of heat to prevent milk so treated carrying infection to guinea-pigs. If a temperature of 70 C. be used, it requires five minutes' exposure to ensure the same results. Of these two combinations of time and temperature factors, the former excels the latter, when the food value of the treated milk is also considered. Brown is of opinion that until bovine tuberculosis can be stamped out at its source, proper pasteurization of milk is the only method of rendering milk safe as a diet for human consumption.

Relation of Carcinoma to Infection.—The series examined by Robertson in the present research consists of fifteen cases of malignant disease—six cases of adenocarcinoma of the mamma, three being scirrhus and three being encephaloid in type; one case of primary liver-celled carcinoma (and the discharge from the wound after operation); one case of squamous-celled carcinoma, metastatic in submaxillary lymphatic gland, the primary neoplasm being in the lower lip; one case of carcinoma of the maxillary sinus; one case of sarcoma of the maxilla; one case of adenocarcinoma of the rectum; one case of adenocarcinoma of the ovary, papilliferous in type; one case of squamous-cell carcinoma of the cheek; one case of squamous-cell carcinoma of the glans penis; a swab from a squamous-cell carcinoma of the cheek. From all these fifteen cases an anaerobic diphtheroid bacillus was demonstrated in cultures. In seven cases the bacillus was obtained subsequently in pure cultures. In all fifteen cases a mannite nonfermenting staphylococcus was isolated, and in about two thirds of the series streptococci were present also. In nearly every instance these staphylococci and streptococci were obtained only in anaerobic cultures. Two control cases were examined. In one case subcutaneous fat and, in the other case, muscle of patients who were not the subject of malignant disease, gave negative results for the anaerobic diphtheroid bacillus. The author's father has held that these bacilli are responsible for the proliferation of the cells in which they lie.

Medical Journal of Australia, Sydney

2: 135-160 (Aug. 11) 1923

*Achlorhydria. Its Nature with Suggestions for Its Treatment. F. L. Apperly.—p. 135.
Ocular Emergencies in General Practice. J. C. Douglas.—p. 140.
*Case of Tuberculous Meningitis with Extreme Neutrophil Leukocytosis. H. J. Clayton.—p. 144.

Achlorhydria.—The majority of patients with apparent achlorhydria, Apperly points out, have a normal secretion of gastric acid, but this is neutralized as rapidly as it is secreted, owing to an abnormally large regurgitation of duodenal alkali. While it is as yet impossible to state the exact cause of this increased reflux, there is evidence that it is due to increased intestinal irritability. Although the evidence suggests that absence of free hydrochloric acid in these cases is merely one of the signs of an intestinal indigestion, it is important to treat this sign, since loss of free gastric acidity may lead to intestinal infection with serious consequences. Treatment in these cases should be directed against the cause of the intestinal irritation, and should aim at the prevention of duodenal reflux by allaying this irritability and raising gastric tone. In cases of carcinoma gastrica, true gastritis and some forms of pernicious anemia, the experimental results show a definitely decreased secretion of acid, but in a surprisingly large number of cases of pernicious anemia the experimental results show a definitely decreased secretion of acid; a surprisingly large number of patients with pernicious anemia have a good secretion of acid.

Extreme Neutrophil Leukocytosis in Tuberculous Meningitis.—The extreme neutrophil leukocytosis in the case cited by Clayton and Ross somewhat obscured an otherwise complete picture of tuberculous meningitis. The leukocyte count was 21,000 and 80 per cent. of these were neutrophils with only 15 per cent. of lymphocytes. There was a basal tuberculous meningitis but no evidence whatever of acute involvement of the lung by the tubercle bacillus or any other organism.

Medical Journal of South Africa, Johannesburg

18: 269-290 (June) 1923

Treatment of Fractures of Bones of Extremities. I. W. Bresner.—p. 269.
Treatment of Fractures of Upper Extremity. R. Daly.—p. 272.

18: 291-314 (July) 1923

Ventilation: Problem of Removing Excess Body Heat. E. H. Cluver.—p. 291.
Tubal Pregnancy. Thirty-Two Cases. J. C. Pretorius.—p. 298.
Glioma of Retina. F. H. Robinson.—p. 300.
*Case of Unusual Ectopia Testis. W. F. Skaife.—p. 302.

Ectopic Testis at Anal Margin.—Skaife relates the case of a man, aged 35, with only one testis in the scrotum, which testis was normal in size and shape and situated in the right side. Situated at the posterior anal margin near the middle line was a pedunculated globular tumor, about 1½ inches in diameter, covered by crenated skin resembling that of the scrotum, this skin being freely movable over the tumor. The surface of the tumor was smooth and its consistency hard, and it was found to have a pedicle about the thickness of the spermatic cord. On squeezing the tumor, the man winced and the normal testis was observed to retract in the scrotum. The tumor was removed. It consisted chiefly of fibrous tissue with scattered elements of definite testicular tissue.

Practitioner, London

111: 97-172 (Aug.) 1923

Ear, Nose and Throat Operations in General Practice. J. Dundas-Grant.—p. 97.
Sudden Deaths from Trivial Causes. W. G. A. Robertson.—p. 110.
Insulin. O. Leyton.—p. 125.
Causation and Immediate Treatment of Retention of Urine in Male. W. K. Irwin.—p. 134.
Epilepsy and Chronic Intestinal Stasis. A. W. Robertson.—p. 142.
Transference and Trends. W. J. Jago.—p. 150.
Natural Mental Healing in Relation to Forms of Psychotherapy. J. Kenelm Reid.—p. 154.
Middle Way in Treatment of Functional Nerve Disorders. R. M. Ladell.—p. 162.

South African Medical Record, Cape Town

21: 341-364 (Aug. 11) 1923

Blood Transfusion and Significance of Various Blood Groups. C. DeW. Gibbs.—p. 342.
Cerebrospinal Meningitis. I. Bacteriology and Immunology. S. S. Lister.—p. 347.
Id. II. Pathology. J. H. Harvey, Pierie.—p. 349.
Id. III. Clinical Picture and Diagnosis. A. Bloom.—p. 350.
Id. IV. Serum Treatment. A. I. Girdwood.—p. 351.
Fulguration for Bladder Growths. H. T. Murrell.—p. 355.
*"Vesicalization" of Stump of Cervix Uteri. E. O. Ashe.—p. 357.

Vesicalization of Stump of Uterine Cervix.—Vesicalization is the word used by Ashe to describe the procedure adopted in one case to cure a vesicovaginal fistula which occurred after a subtotal hysterectomy. A tumor, left tube and body of the uterus had been removed, leaving the right ovary, tube and the cervix. The number and density of adhesions and the patient's stoutness made the operation difficult, and silk ligatures were used freely. At first, there was little to note in the healing of the wound, general condition of the patient, etc., but soon she began to complain of frequent and painful micturition. This became severe, and then there occurred a leakage of urine from the vagina. This leakage rapidly increased with much excoriation of the vulva and surrounding skin. All kinds of treatment were tried to stop the leak, acidify the urine and cure the irritation, including continuous drainage of the bladder with Cathcart's apparatus, but nothing helped. Examination under an anesthetic showed that the urine was escaping through the cervical canal, so a further operation was done. There was so much inflammation and thickening of the vaginal fornices that it was impossible to pull the cervix down, peel off the bladder and proceed on conventional lines. The cervix was, therefore, most thoroughly scraped out and "rawed" with sharp spoons, and during this process a thick knotted silk ligature (evidently the cause of all the trouble) was removed from the cervical canal. The cervix was then firmly stitched up and entirely occluded by six deep catgut sutures, passed anteroposteriorly. Part of the cervix was, therefore, "vesicalized" or taken up into the bladder wall.

Bulletins de la Société Médicale des Hôpitaux, Paris

47: 717-727 (May 18) 1923

Import of Varicose Thoracic Veins. Chiray and Lebon.—p. 717.
*The Liver in Chronic Enterocolitis. R. Savignac and A. M. de Fossey. —p. 719.
*Methyl Bromid Intoxication. A. Cade and P. Mazel.—p. 722.

Liver Insufficiency in Chronic Enterocolitis.—Savignac and de Fossey report the results of a two years' study of metabolism in chronic enteritis, especially the hepatic inefficiency shown in the urine and the blood. This was evidenced in thirteen of seventeen cases of enterocolitis by hypercholesterinemia, hypercholemia, digestive hemoclasis or a disturbed nitrogen balance; derangement of carbohydrate metabolism was inconstant. Because of the dissociation of the disturbances, it was impossible to measure the degree of hepatic insufficiency. They found no relation between the different signs of liver insufficiency and bowel function. Some patients were constipated and others had diarrhea.

Intoxication by Methyl Bromid.—Cade and Mazel's patient, aged 32, working in a factory where chemicals were manufactured, for a month had been affected by the vapors from methyl bromid distillation before a leak in the tank occurred. He tried to stop the leak with cotton and left the works an hour later feeling normal. Reaching home he ate a little without appetite and lying down felt a sudden pain in the neck, which was relieved by medicine, and he had a good night. Sixteen hours after the inhalation his fingers and legs became useless; he had diplopia with indistinct vision, and he was unable to give his name either orally or in writing. Paresis of the limbs, more marked on the left side, set in with violent pains in the legs, and marked motor incoordination, which was increased by closing the eyes. The authors have collected nine other cases of methyl bromid poisoning, all of occupational origin. The symptoms in all were nervous: staggering, dizziness, sudden headache, and visual disturbances, either singly or in combination. After a remission of a day or two, the symptoms returned, with muscular weakness or incoordination, sometimes with somnolence or lipothymia, and in the graver cases with sensorimotor polyneuritis. In a second case, the man, aged 59, had been engaged at times for thirty-two years in the manufacture of antipyrin; he had had four attacks of mild methyl bromid poisoning, with complete recovery in the intervals. In all the cases, the disturbances from the methyl bromid subsided in from one to fifteen days, or a few weeks in the graver cases, except in the two fatal cases reported in which epileptiform attacks occurred and merged into a terminal coma in a few hours. In all the cases the acute poisoning was the result of the breaking of some part of the apparatus, with consequent escape of the fumes.

47: 769-832 (June 1) 1923

Radiographic Diagnosis of Bronchiectasis. F. Trémolières and Joulia. —p. 769.
*Arsphenamin to Prevent Abortion in Syphilis. M. Pinard.—p. 772.
*Nerve Resection in Angina Pectoris. D. Daniélopolu.—p. 778.
Mixed Immunization Treatment of Acute Lung Diseases. d'Oelsnitz and L. Colle.—p. 790.
*Auscultation Signs of Lung Cavities. P. Ameuille and L. Gally.—p. 802.
*Prolonged Undulatory Fever from Carcinoma. M. Roch and G. Bickel. —p. 806.
*Treatment of Eczema from Anaphylaxis. H. Grenet and R. Clément.— p. 814.
*Treatment of Tuberculous Hemorrhagic Pericarditis. Amaudrut.— p. 816.
Pneumonia of Abnormal Lobe of Lung, Terminating with Meningitis. G. Paisseau and Duchon.—p. 819.
*Nasofacial Reflex in Lung and Nervous Diseases. P. Emile-Weil, Lévy-Franckel and Juster.—p. 824.
Lung Siderosis with Iron in the Sputum. E. Rist and J. Rolland.— p. 828.

Arsphenamin to Prevent Abortion in Syphilis.—Pinard thinks frequent injections of small doses of arsphenamin in syphilitic women are dangerous and do not arrest the feticidal action of syphilis. Of 228 syphilitic women in his service given one to three series (doses up to 0.75 or 0.9 c.c.) of neoarsphenamin intravenously at intervals of three weeks, during pregnancy, 215 gave birth to living infants at term; a few deaths were due to obstetric causes. In the remainder, treatment had been insufficient or started too late. Only thirty-seven of 152 pregnant syphilitic women not treated with arsphenamin preparations gave birth to infants who lived after the second day. Having given 5,000 intravenous injections in pregnant syphilitic women, he feels justified in asserting that arsphenamin even in large doses does not cause abortion.

Resection of Posterior Roots in Angina Pectoris.—Daniélopolu having found that the pain of angina pectoris may be relieved by anesthesia of the spinal nerves, concludes that cardio-aortic pain is always referred while the other cardiac disturbances are perceived in the heart itself. He recommends resection of the left posterior roots or the corresponding left dorsal nerves (these methods do not hurt the important centrifugal fibers) as a surgical treatment of angina pectoris. In one patient, intensely painful attacks of angina pectoris, recurring dozens of times during the twenty-four hours, practically ceased after resection of the left second dorsal nerve. The case is not conclusive as the cardiorenal insufficiency, ascites and enormously enlarged liver soon proved fatal.

Auscultatory Signs of Pulmonary Cavities.—Gally says that many pulmonary cavities are not detected by auscultation. In one case in which radiography showed a cavity occupying nearly half of the left upper lobe, there were no râles, and absence of the breath sounds was the only sign. A cavity located in an inaccessible region may give no audible sign. Bubbling râles and dry and moist crepitations may, and most frequently do, indicate the existence of a cavity. They may be heard over a large area when there is only a small cavity located far from the surface. Cavernous breathing was observed in one case of pulmonary lymphogranulomatosis in which the trachea was drawn over to the margin of the lesion but without evident cavity.

Prolonged Febrile Waves of Carcinomatous Origin.—Roch and Bickel say that fever accompanying carcinoma rarely occurs in such regular waves of from seven to twelve days, as in their patient, aged 44, in whom necropsy showed no septic complications. They believe that each febrile attack corresponded to an invasion of the circulation with carcinoma. Symptomatic anemia was noted in the beginning and became serious. In the third stage the anemia became pernicious and was accompanied by a hematopoietic reaction with 2 per cent. normoblasts and a color index of 1.10.

Wheat Flour Anaphylaxis Cured by Desensitization.—Grenet and Clément's patient, aged 63, had a pruritic eczema for twenty-three years, with periodic acute attacks, which did not yield to treatment. As bread was the only food which had never been excluded from her diet, she was placed on a breadless but otherwise normal diet, and improved greatly. A cutaneous test with fresh wheat flour diluted with sodium chlorid solution gave a negative reaction, but an intracutaneous injection of 0.3 c.c. of this solution was promptly positive. The ingestion of 100 gm. bread caused a hemoclastic crisis in forty-five minutes. For desensitization, 0.5 c.c. of wheat flour mixed cold with physiologic saline (1:6), was injected subcutaneously; six days later another injection of 1 c.c. of the same mixture was given. In another six days the eczema was dry and not itching. During two weeks she ate a piece of bread the size of a nut every third day. During the next two weeks she ate bread every other day in gradually increasing doses. Thereafter bread was allowed with one meal a day. The results so far, for seven months, have been perfect.

Cure of Tuberculous Pericarditis with Bloody Effusion.—Amaudrut's patient, aged 13, had been affected with tuberculous pericarditis with effusion for several months. Paracentesis of the pericardium yielded 150 c.c. of bloody fluid and reduced the pressure from 20 to 10 c.c. of water. Twenty c.c. of a horse serum preparation was injected into the pericardial cavity. Another tapping yielded 150 c.c. and reduced the pressure to 3 c.c. of water. A new injection of 20 c.c. of the serum preparation was given. The child was placed on a salt-free diet for six weeks, 4 gm. of calcium chlorid was administered daily, and he was subjected to intense heliotherapy. Practically complete resorption occurred, and cure has been complete for ten months.

Nasofacial Reflex in Pulmonary and Nervous Affections.—Emile-Weil, Lévy-Frankel and Juster say that excitation of

the mucous membrane of the nose causes changes in the cardiac rhythm and congestion of the face. The superior meatus of the nose is stimulated with cotton and this is followed normally by congestion of the homolateral eyelid and conjunctiva, with secretion of tears and slight mydriasis. In acute and subacute pulmonary affections, the reflex is intense on the side affected. In unilateral chronic pulmonary disease, the congestive reflex is variable but the pupillary mydriasis on the affected side is constant. In neuralgia, the conjunctival and lacrimal reaction is exaggerated, and in liver affections the congestive reflex is very rapid and intense. In tabes with Argyll Robertson pupils, the pupil reflex does not occur, but it is present when these ocular signs are absent.

Paris Médical

13: 1-40 (July 7) 1923

Cardiovascular Disease in 1923. P. Lereboullet and J. Heitz.—p. 1.
Diagnosis of Adhesive Pericarditis. C. Laubry and F. Bordet.—p. 11.
*Angina Pectoris with Valvular Defects. L. Gallavardin.—p. 16.
Pulmonary Insufficiency with Mitral Stenosis. P. Ribierre.—p. 21.
Roentgenography of Extreme Dilatation of the Heart. E. Bordet.—p. 25.
Pathology of the Blood in 1923. M. Leconte and J. Yacoel.—p. 31.
Blood Transfusion. P. Emile-Weil.—p. 36.

Angina Pectoris with Valvular Disease.—Gallavardin has had twenty-five cases of endocardial valvular disease in the last four years in which attacks of angina pectoris formed part of the clinical picture. He gives details of the latest fifteen cases, but has had no opportunity for postmortem examination. Only one in this last series has died. With a mitral defect one seldom thinks of syphilis, but, even with aortic insufficiency, syphilis is not always a factor. The attacks of angina pectoris in two cases were apparently pure and occurred without shortness of breath, and the discovery of signs of severe mitral defect was a surprise. In six other mitral cases, the angina pectoris symptoms developed only at night or in repose, or only while walking. With an aortic defect, the symptoms of angina pectoris generally developed apart from the valvular symptoms, simulating pure angina pectoris. In one case they were very severe, recurring frequently at night or during walking. They were relieved with nitroglycerin. One man aged 30 had an aortic-mitral defect but there was no shortness of breath, no edema, and the liver was of normal size; but the frequently recurring attacks of severe angina pectoris had totally incapacitated him for four years. There was nothing to indicate syphilis. Amyl nitrite relieved the attacks.

Revue de Médecine, Paris

40: 257-319 (May) 1923

The Work of Pasteur. C. Richet.—p. 257. Cont'd.
Psychoses and Pathologic Anatomy. M. de Fleury.—p. 273.
*Orthostatic Albuminuria. A. Hanns.—p. 279. Conc'n, p. 362.
The Cortical Process of Concentration. N. I. Krasnogorsky.—p. 294.
Survey of Recent Works on the Meninges. H. Godlewski.—p. 311.

Orthostatic Albuminuria.—Hanns discusses the volume of the urine, the acidity and the sodium chlorid content, in the course of orthostatic albuminuria. He tabulates the findings in two very pronounced cases and in three mild forms, and also in two cases of intermittent albuminuria, which he classes as an abortive type of orthostatic albuminuria.

Schweizerische medizinische Wochenschrift, Basel

53: 529-548 (May 31) 1923

*Hyperglycemia and Glycosuria in Diabetics. P. Steiner.—p. 529.
Labor Pains and After-Pains. A. Nordmann.—p. 534.
Traumatic Epithelial Cysts. A. v. Beust.—p. 536.
Meningococcus Meningitis. L. Melsanowitsch.—p. 538.

Hyperglycemia and Glycosuria in Diabetics: Development, Variations and Correlations.—Steiner's research was done on twenty slight cases, ten average and eight severe cases of diabetes. He found the threshold of glucose excretion very variable in different individuals. In the majority it ranged between 0.205 and 0.215 per cent. of glucose in the blood. The sugar content of the blood and the glycosuria usually ran parallel. His tables and charts showing the sugar content of the blood, type of dispersion, age, the weeks or years the patient had been under observation and other details allow a curve of averages. Comparison with this enables a better comprehension of the significance of single symptoms in different cases.

53: 549-568 (June 7) 1923

Pituitary Treatment in Obstetrics. J. Mennet.—p. 549.
Importance of the Ion Balance. J. Markwalder.—p. 553.
Histons in Mammalian Organism. K. Felix.—p. 558.
*Occupational Injury from Sulphur Dioxid. J. Strebel.—p. 560.

Sulphur Dioxid Poisoning.—Strebel has seen a number of cases of superficial punctate central keratitis among the spinners and weavers in a local factory. It may be accompanied by ciliary neuralgia, and in two cases there was hemorrhagic gastritis or acute nephritis. The gas reaches the eyes through the lacrimal passages when goggles are worn; Strebel has devised a mask with goggles and a zinc and charcoal filter which is proving effective protection.

53: 569-592 (June 14) 1923

Treatment of Psoriasis. M. R. Gonin.—p. 569.
Case of Lung Fluke Disease in Switzerland. O. Amrein.—p. 576.
*Roentgen-Ray Treatment of Sciatica. M. Steiger.—p. 581.
Experimental Study of Bismuth in Syphilis. H. Ritz.—p. 584.

Roentgen-Ray Treatment of Sciatica.—Steiger remarks that we can assume a neuritic or perineuritic factor when sciatica persists after removal of known causes, or the congested nerve may be too large for the opening in the bone. In these conditions, a single exposure to the roentgen rays may cure recent sciatica; older cases may require from two to four sittings. The roots of the sciatic nerve have to be exposed here, even if there is no pain or tenderness at this point. He describes thirteen cases from his own experience in which bilateral or unilateral sciatica of from one to sixteen years' standing subsided completely under this treatment, with no return during the months to two years since. In one patient, occipital neuralgia subsided with the sciatica, as also neuralgia of the brachial plexus in another case, and pruritus ani in a third.

Policlinico, Rome

30: 889-920 (July 9) 1923

*Isolation of the Pneumococcus. B. Polettini.—p. 889.
*Megacolon. V. Vidal.—p. 891.
*Urobilinuria in Diagnosis of Latent Malaria. I. di Pace.—p. 894.
Symptoms from the Chiasm with Pituitary Lesions. G. Fumarola.—p. 897.

Isolation of the Pneumococcus.—Polettini states that the pneumococcus grows earlier and more profusely than other bacteria on Pergola's culture medium. This is made with 100 c.c. of normal beef serum, 1 egg yolk and 0.02 gm. of potassium tellurite. This mixture is distributed in test tubes and sterilized at 55 C. for an hour on three successive days. Part is used in liquid form and part is solidified by heating for an hour to 80 C. The pneumococcus colonies become distinct by the tenth or twelfth hour. After twenty-four hours, other bacteria crowd them beyond recognition. Cultures obtained on this medium kept their virulence in sealed tubes for three months.

Megacolon.—The sigmoid loop was the one enormously enlarged, and the distal stump slipped out of sight when a segment 30 cm. was resected. It would have been better to have made the side-to-side anastomosis before resecting the loop. The man, aged 27, displayed a tendency to spasm of the lower esophagus and cardia, and the primary factor in the megacolon may have been a similar spasm.

Urobilinuria in Malaria.—Di Pace tested the urine from nearly 200 persons with malaria, and found urobilinuria in all the unmistakable cases of malaria, while it was exceptional in the latent cases and was not uncommon in the healthy. Hence no reliance can be placed on it for the diagnosis of latent malaria.

30: 921-958 (July 16) 1923

*Rupture of Uterus in Cesarean Scar. S. Marinacci.—p. 921.
Sclerosis of Mesocolon with Duodenal Ulcer. M. Francini.—p. 924.
*Enterostomy in Acute Peritonitis. L. Cantalamessa-Carboni.—p. 926.
*Insufflation of Gas in Case of Ileus. C. Catteruccia.—p. 929.
*Influence of Calcium on Complement Fixation. S. Rapisardi.—p. 930.
The Clinical Syndromes of Erythroblastosis. G. Ghedini.—p. 931.

Rupture of Gravid Uterus from Infiltration by Villi.—Marinacci's case confirms the danger of rupture of a cesarean cicatrix when it becomes invaded by chorionic villi. Profuse intestinal hemorrhage was the first symptom to attract atten-

tion, for which no cause was discovered until symptoms of partial obstruction of the bowel followed. Laparotomy revealed that a loop of intestine had become adherent to the cicatrix, and that the uterus had ruptured here and beyond. The uterine wall in this region and the adherent bowel had been undermined and infiltrated by the destructive action of chorionic villi. While the defect in the intestine was being sutured the uterus expelled its contents spontaneously, and the operation was concluded with subtotal hysterectomy. The intestinal hemorrhages had preceded by several days the slow rupture of the uterine wall.

Enterostomy in Acute Peritonitis.—In the case reported, the symptoms unmistakably indicated acute peritonitis from perforation of an ulcer in the small intestine. The perforation was sutured, but the man, aged 57, died on the fourth day. The bowels had moved freely, showing that the peritonitis had been conquered, and the fatal outcome might possibly have been averted by an early enterostomy.

Insufflation of Intestine in Treatment of Ileus.—In Catteruccia's case the symptoms indicated mechanical ileus from obstruction by an inoperable recurring cancer in the left flank. He injected into the intestines 0.5 liter of water containing 18 gm. of tartaric acid, and followed this at once with the same amount of water containing 20 gm. of sodium bicarbonate. The gas generated by the chemical interaction was retained by a cotton pad applied to the anus. There had been no movement of the bowels for a week, but this soon restored intestinal function and the colic pains subsided. No enema could have proved so effectual, he says, while, under the circumstances, an enema would have been more risky.

Influence of Calcium on Complement Fixation.—Rapisardi asserts that it requires 0.5 c.c. of 3 per cent. solution of calcium chlorid to display even the slightest inhibiting action on complement fixation. His findings thus contradict some recent publications in this line.

30: 317-360 (July 1) 1923. Medical Section

Clinical Variety of Acute Leukemia. G. Mario.—p. 317.
Research on Spirochaeta Icterohemorrhagiae. V. Vanni.—p. 330.
Types of Streptococci in Malignant Endocarditis. E. Trenti.—p. 336.
*Reaction in Colon to Gallbladder Disease. U. Baccarani.—p. 353.

Reaction in Colon to Gallbladder Disease.—In addition to the symptoms in the stomach which accompany gallbladder disease, or in place of them, Baccarani has observed a similar secondary disturbance in the bowel. The connection between cholecystitis and certain intestinal disturbances was unmistakable in a number of his cases, as he shows by three typical examples. The gallstone cholecystitis in each case induced at times a sudden attack of a profuse watery pseudodiarrhea. The patients said they felt as if they were urinating from the bowel. These attacks recurred whenever the cholecystitis flared up, and lasted about half an hour. After this there were no symptoms from the bowel until the next attack. He explains them as a kind of angioneurotic edema in the bowel, of sympathetic origin. In his cases it seemed to be restricted to the transverse and descending colon. The distribution of the vasodilating fibers of the sympathetic to this portion of the bowel explains this. At other times, constipation was the rule, and in many cases of disease of the biliary apparatus, rebellious constipation was cured by removal of the gallbladder.

30: 337-388 (July 15) 1923. Surgical Section

*Healing of Fractures. A. Albanese.—p. 337.
*Postoperative Heatstroke. R. Botteselle.—p. 352.
Calculi in Ectopic Kidney. C. Chiaudano.—p. 366.
Congenital Cysts in Neck. L. Gobbi.—p. 372.

Healing of Fractures.—Albanese concludes from his experimental research, with vital staining, on pigeons and guinea-pigs that Wolff's law governs the healing of fractures as well as the development of the bones. All changes in the function of a bone are attended by changes in the internal structure. The trophic action of functional stimulation was confirmed.

Postoperative Heatstroke.—Botteselle relates that during the summer of 1921 there were numerous instances of sunstroke and heatstroke from exposure to the sun. In some of the cases of heatstroke there had been no exposure to the sun. He describes seven cases in detail in which patients apparently smoothly convalescing from some operation suddenly developed convulsions and coma, and necropsy revealed the typical findings of heatstroke. The symptoms were severer the shorter the interval after the operation. Such experiences warn that if operation cannot be postponed until the extreme heat is past, extra efforts must be made to keep the patient cool.

Brazil-Medico, Rio de Janeiro

1: 351-368 (June 30) 1923

*Surgical Treatment of Ozena. M. Ottoni de Rezende and Homero Cordeiro.—p. 351.
The Endocrine-Vegetative Apparatus in Parkinson's Disease. Fernando Villela.—p. 357.

2: 1-20 (July 7) 1923

Idiopathic Keratitis. Hilario de Gouvêa.——p. 1.
Bullet in Sphenoidal Sinus. Ildeu Duarte.—p. 3.
The Food Problem in Northern Brazil. Araujo Lima.—p. 5.

Treatment of Ozena.—This article states that no other treatment of ozena has cured such a large proportion of the patients as Lautenschläger's operative procedure. It was applied in forty cases, supplemented by Seiffert's U silk stitches for fixation of the mobilized walls, and the outcome has been satisfactory in 70 or 80 per cent. of the cases. Hinsberg has also reported 40 cured in 59 cases, the ozena of one or two years' standing in 24.

2: 21-36 (July 14) 1923

*Gonococcus Keratoderma. A. A. da Matta.—p. 21.
*Poisonous Snakes of Brazil. R. Kraus.—p. 24.
French Urology in 1922. de Berne-Lagarde.—p. 28.

2: 37-52 (July 21) 1923

Ptosis of Stomach and Bowel. R. de Souza Lopes.—p. 37.
Bacillary Dysentery in Brazil. Aristides Guimarães, Moacyr de Souza Lima and Alarico de Toledo Pisa.—p. 42.

Gonococcus Keratoderma.—In da Matta's case the gonorrhea was the third attack in six years, and there were joint lesions in addition to the urethritis. The soles presented a number of conical nodules, some of which ulcerated, an actual keratoderma, but all subsided completely under vigorous treatment of the gonorrhea. The soles had healed by the twenty-seventh day and all symptoms had subsided by the thirty-ninth.

Poisonous Snakes in Brazil.—Kraus has been studying the feeding habits of poisonous snakes. He describes certain species that eat birds or other snakes, and experiences with dogs and other animals that eat snakes, apparently unharmed by the snakes' bites. He suggests that by breeding these animals to produce still greater resistance, domesticating them might prove useful in prevention of fatalities from snake bites in Brazil. The animal most useful for this seems to be the *cachorro do matto, Canis vetulus.* He gives an illustration of one as it is devouring a poisonous snake.

Archiv für klinische Chirurgie, Berlin

125: 1-416 (July 31) 1923

*Parotitis in Typhus. P. A. Herzen.—p. 1.
*Drainage of the Pericardium. G. Ellmer.—p. 13.
*Secretion After Resection of Stomach. H. Smidt.—p. 26.
*Operations on Stomach. J. Galpern.—p. 86.
*Gastric and Duodenal Ulcers. E. Nordmann.—p. 92.
*Gallstones and Pregnancy. H. H. Schmid.—p. 121.
Ampulla-Like Enlargement of Cystic Duct. G. Rosenburg.—p. 171.
Nonparasitic Cysts in Liver. W. Schaack.—p. 183.
*Goiter in the Young (Würzburg District). E. Stahnke.—p. 193.
*Conservative Surgery of the Spleen. J. Volkmann.—p. 231.
After-Sterilization of Catgut. F. Konrich.—p. 275.
Variations of the Sigmoid Flexure. Ssoson-Jaroschewitsch.—p. 283.
Incarceration of Bowel in Slit in Mesentery. S. Sofoteroff.—p. 324.
*Action of Ions on Granulation Tissue. H. Fischer.—p. 333.
*Glycosuria with Surgical Infections. W. Rieder.—p. 362.
*Subcutaneous Skin Flaps. H. Ruef.—p. 366.
*Osteoplastic Operations. K. Blond.—p. 378.
Age Changes in Costal Cartilages. W. J. Popow.—p. 392.
*Operative Treatment of Pernicious Anemia. Walterhöfer and Schramm.—p. 407.
Bilateral Hydrocele. F. Kazda.—p. 414.

Parotitis in Typhus.—Herzen says that 2 per cent. of all the many cases of typhus in the Russian pandemic of 1918 and 1921 presented parotitis. Gangrene of the skin and legs was even more common.

Drainage of the Pericardium.—Ellmer resects the fifth and sixth costal cartilages, removes the presenting portion of the muscle below, and draws up to one side the intact pleura.

This exposes the pericardium at its lowest point, which is not the case with other methods.

Gastric Secretion After Resection.—The research was done on dogs with a Pawlow stomach pouch, after resection by the Billroth I or II, or exclusion of the pylorus. Previous work in this line is summarized and the results compared. The detailed findings are given in sixteen tables. They show among other things that the Eiselsberg method of exclusion of the pylorus does not reduce gastric secretion; on the contrary, it tends to exaggerate it. Resection by the Billroth I, with resection of the entire antrum, reduces secretion to the minimum. The chemical phase is done away with entirely, and only the reflex phase is left. The research showed further the advantages of milk in ulcer cases, as milk checks production of acid. Meat and bread should be taken only at the main meals. Small and frequent meals are a disadvantage on account of the psychic gastric secretion.

Results of Operations on the Stomach.—Galpern reports 508 cases of nonmalignant stomach affections requiring operative treatment. In 254 cases traced for one to fourteen years the patients were entirely or nearly cured in all but 19.3 to 25.2 per cent. The mortality after gastro-enterostomy was 3.75 per cent. in 480 cases. This included 5 cases in which the ulcer perforated soon after the operation. He declares that when an ulcer develops after two or three years of perfect health following the operation, the presumption is in favor of a new ulcer rather than recurrence of the old ulcer. The second ulcer was found in an entirely different part of the stomach in some cases. His figures testify strongly in favor of gastro-enterostomy rather than resection as preferable treatment, except with suspicion of cancer and at a relaparotomy.

Gastric and Duodenal Ulcer.—Nordmann analyzes 180 operative cases. The mortality was 4.5 per cent. after resection, and 4.7 per cent. after gastro-enterostomy. In 10 per cent. there were multiple tumors. Peptic ulcer developed later in only 4 cases. The gastric acidity is not a reliable criterion for the diagnosis of ulcer, and he warns against operating on girls and women with a neurotic tendency, as their disturbances are frequently functional. Resection for duodenal ulcers was done in 49 per cent. of the 71 cases, as no essential benefit on the ulcer from gastro-enterostomy was ever noted. On the other hand, with periduodenitis he refrains from both resection and gastro-enterostomy as the symptoms persist after each. The 50 patients treated by resection by the Billroth II method were nearly all free from all disturbances and had gained in weight, while a number of the 24 treated by transverse resection still complained of pains and oppression at the slightest error in diet, but they were not of the same kind as before. The 15 treated by Billroth I were a long time recuperating and had to keep to a restricted diet.

Cholelithiasis and Pregnancy.—Schmid summarizes from the records 46 cases in which an operation for gallstones was done during a pregnancy, 4 during childbirth and 30 during the puerperium. The fluctuations in intra-abdominal pressure, the sudden subsidence of the stasis in the gallbladder after delivery, are liable to mobilize gallstones or cause the gallbladder to rupture. Under conservative treatment, the mortality in 60 cases was 10 per cent. and under operative measures 10.8 per cent. of 83 cases. The great danger is from the far advanced lesions, and as the difficulties of operating are far greater in the latter half of pregnancy, he advises operation early in the pregnancy, when inflammatory phenomena are discovered. With peritonitis impending or already installed, after the sixth month, he advises evacuation of the uterus at the same time the gallbladder is removed, as the lesser of two evils.

Goiter in the Young.—Stahnke compares the clinical finding with the microscopic in fifty resected goiters (seventeen girls and thirty-three boys). Injury from ligation of the four arteries and extensive resection was never observed. He recommends postoperative treatment with the minutest doses of iodin, but says that iodin should not be given before the thyroidectomy when the thyroid is causing symptoms.

Conservative Operations on the Spleen.—Volkmann has compiled seven cases in which conditions prevented the proposed splenectomy, and the splenic artery was merely ligated. Similar operations on guinea-pigs and dogs confirmed the possibility of atrophy of the spleen after ligation of arteries or veins, also the possibility of regeneration of the spleen from the stump after resection of part of the spleen. After splenectomy, accessory spleens enlarge.

Action of Ions on Granulation Tissue.—Fischer discusses the action of the anions iodin, chlorin and SO_4 and the cation sodium on the young cells of healing wounds.

Transient Glycosuria with Surgical Infections.—Rieder found no trace of glycosuria on reexamination later of fifteen patients who had had transient glycosuria during the course of a phlegmon. In three others the transient glycosuria had been higher during the phlegmon, and in two of these glycosuria was found later after test ingestion of glucose. The p_H was also higher in the severer phlegmon cases.

Subcutaneous Skin Transplants.—Ruef gives the details of a number of cases in which the "cutis-subcutis flap" was applied to aid in closing a large defect in the abdominal wall, to substitute a tendon, to corect a flail joint or habitual luxation of the patella, or to close a bladder fistula. The flap of skin can be taken from the vicinity or at a distance, and it is stretched taut and sutured, and then the skin is drawn back over it. It thus is nourished from its two surfaces, and heals perfectly in place. The nineteen cases are described in detail, with illustrations.

Osteoplastic Operations.—Blond illustrates the present findings in two cases in which more than fifteen years ago the humerus was removed. This was on account of sarcoma in one case, and a strip from the tibia, 15 cm. long and 5 mm. in diameter, wrapped in its periosteum, was implanted in place of the humerus. In the other case, there was cyst formation, and the humerus was merely scraped out and a strip 7 or 8 cm. long, from the humerus of a cadaver, was fitted into the cavity These patients were 36 and 16 years of age at the time of the operation, and the functional outcome has been perfect in both. In a third case the young man died from metastasis a year after the osteoplastic operation on the leg, and the necropsy findings are reproduced. The bone implant in this case had been taken from another patient undergoing amputation at the time.

Operative Treatment of Pernicious Anemia.—Among the measures advocated to stimulate the blood producing apparatus in pernicious anemia, Walterhöfer and Schramm claim a place for the removal of bone marrow from long bones. They have applied this *entmarkung* in nineteen cases in the last two years, and report decided benefit in 37 per cent. In three cases the remission was objective as well as subjective. In three others the benefit lasted only for three months.

Deutsche medizinische Wochenschrift, Berlin

49: 667-706 (May 25) 1923

Swine Plague. Uhlenhuth.—p. 667. Conc'n p. 709.
Turpentine Treatment. V. Klingmüller.—p. 669.
Arsphenamin Preparation in Relapsing Fever. D. Pletnew.—p. 671.
Treatment of Nervous Diseases with "205." M. R. Bonsmann.—p. 672.
*The Calcium Content of the Serum in Asthenia. O. Lubowski.—p. 673.
*Diagnosis of Syphilis by the Practitioner. Zinsser.—p. 674.
*Prophylactic Arsphenamin Treatment of Syphilis. H. Hecht.—p. 676.
Remedies for Coughs and Colds. R. Heinz.—p. 677.
Treatment of Local Staphylomycoses. K. Koch.—p. 678.
Diagnosis of Intra-Abdominal Adhesions. W. Teschendorf.—p. 681.
*Sulphur in Treatment of Arthritis Deformans. H. Hayn.—p. 684.
Treatment After Pubiotomy. A. Niedermeyer.—p. 686.
Repeated Tubal Pregnancy. F. Benzel.—p. 687.
Lobelia in Pneumonia. F. Haas.—p. 688.
*Treatment of Migraine. O. Tigges.—p. 689.
*Treatment of Contracted Kidney. A. Mielke.—p. 689.

The Calcium Content of the Blood in Asthenia.—Lubowski quotes Stheeman's statements in regard to the constitutional deficiency in calcium which he regards as a juvenile form of Stiller's asthenia universalis. Lubowski found the calcium content of the serum below normal in seven adults with asthenia universalis and above normal in four of the eleven examined. It seems evident, he says, that cod liver oil and phosphorus are indicated for asthenia in adults as well as in children.

Diagnosis of Syphilis by the General Practitioner.—The main thing, Zinsser remarks, is to think of the possibility of syphilis. Extragenital lesions on the fingers are seldom recog-

nized until secondary manifestations occur, but palpation of glands might have given the clue long before. Especially with slowly developing, painless lesions on fingers, tonsils and lips, the first thought should be syphilis, and the microscope should be employed to establish the diagnosis. The Wassermann reaction is of no use for the primary lesions in syphilis, and at the best merely discloses that the patient has syphilis, without specifying whether the lesion under examination is syphilitic or not. But the finding of spirochetes is unmistakable. Many physicians seem to make it a principle to treat the Wassermann reaction, and this alone, not the syphilis.

Prophylactic Arsphenamin Treatment of Those Exposed to Syphilis.—Four cases are described by Hecht in which preventive treatment was not considered necessary after contact with a syphilitic as there was nothing to suggest infection. But syphilis developed in all, with a malignant course in one case, and Hecht is convinced that arsphenamin treatment when first seen would have warded off the infection. In another group of five cases given an immediate course of neoarsphenamin, 1.35 gm. in ten days, or 1.05 gm. in three weeks, no signs of syphilis have appeared. The exposed patients in these cases were the wives of men recently infected by a prostitute.

Sulphur in Treatment of Arthritis Deformans.—Hayn's eleven cases emphasize the advantages of systematic sulphur treatment in all chronic joint affections that do not yield to the salicylates or to treatment for syphilis. He injected intramuscularly an emulsion of 1 part sulphur depuratum and 20 parts eucalyptol in 80 or 100 parts olive oil. His patients were all severely crippled by their joint disease, and all showed marked improvement. They were given ten, thirteen or sixteen injections in one or two series, at intervals of five or six days. A chill followed the injection in about twelve hours, with fever, headache and pains in the joints most affected. These symptoms all subsided within twenty-four or forty-eight hours. No other by-effects were observed. Massage, passive movements and hot air proved useful adjuvants.

Treatment of Migraine in Women.—Tigges urges others to try the method of treating migraine which he found so useful in three cases. He painted the Fliess' points in the nose with a mixture of 0.5 parts cocain hydrochlorid; epinephrin 1 part (1:1,000) and distilled water to 10 parts. The application was repeated two or three times, using a cotton-wound bayonet-shaped instrument. He generally continued the course for three months. None had any return of the migraine after the first few applications.

Treatment of Contracted Kidney.—A man, now aged 51, has had chronic kidney disease for twenty-three years. He has long made a practice of taking an electric light bath or steam bath every three or four weeks, and Mielke ascribes to this his comparatively favorable condition. After the bath the nonprotein nitrogen was only 0.05 or 0.06 per cent. and the maximal blood pressure 200 or 220. But after three or four weeks the nonprotein nitrogen may rise to 0.1 per cent. and the blood pressure increase, and there may be epistaxis at night. But after the hot bath, conditions right themselves again to a certain extent. This occurs also without the bath when there is a profuse hemorrhoidal hemorrhage.

49: 707-740 (June 1) 1923

*Metritis and Metropathy. H. Sellheim.—p. 707. Conc'n, p. 748.
*Swine Plague. Uhlenhuth.—p. 709. Conc'n.
*The Stomach Channel. K. H. Bauer.—p. 713.
*Rapid Serologic Test for Syphilis. H. Hecht.—p. 715.
Treatment of Heart Disturbances in Pneumonia. R. Stoffel.—p. 716.
Serodiagnosis in Active Tuberculosis. J. Diener.—p. 717.
*Intensive Heliotherapy in Pulmonary Tuberculosis. J. Schürer.—p. 718.
Treatment of Thyroid Tumor Without Resection. L. Ascher.—p. 720.
Drip Irrigation in Puerperal Fever. N. Ellerbroek.—p. 721.
Proposed Legislation to Combat Tuberculosis. Kreuser.—p. 722.
The New Tasks Before the Organized Profession in Prussia. S. Alexander.—p. 723.

Metritis and Metropathy.—Sellheim explains the two groups of endometritis as due to local processes in the uterus in one group, but in the second group great uncertainty prevails as to the etiology, the local findings, the treatment, the outcome and the proper name for the disturbances. Metropathy is perhaps the best term as this is noncommittal, and the frequent absence of local findings excludes metritis. This metropathy may occur at the onset or at the close of sexual life, with irregular bleeding and profuse and almost continuous discharge, and the variability of the effect of different treatments shows that we are groping in the dark. He is inclined to ascribe it in many cases to the strain of business life for women, the slavery to the time clock, and the repression of the natural child-bearing function. If there is decomposition of menstrual blood in addition, the combination of local irritation and general functional disturbance rapidly induces a characteristic and severe clinical picture. The loss of fluids in the uterine discharge has a weakening action, even if there is not much hemorrhage. He remarks that sexual excitement from novels, plays, dances, cohabitation without conception, all form an unnatural mode of life, and the abnormal conditions in the sexual sphere are reflected in these metropathies.

Seroprevention of Swine Plague.—Uhlenhuth says that Germany is far behind America and Hungary in practical protection of hogs against swine plague. The preventive serotherapy is useful only when applied in time. If many of the hogs are already affected, the antiserum is almost powerless.

The Stomach Channel.—Bauer states that the *magenstrasse* was clearly defined in eleven of twelve cadavers he examined. He resected this stomach channel in seven dogs, and was amazed to see how little effect the loss of it had on the stomach. The shape and the function persisted unimpaired, and a new channel formed again. He explains the channel as a rudimentary survival, and like all surviving organs of the kind it is less resistant than other tissues. It might be wiser to resect this gastric channel in operating for ulcer.

Rapid Serodiagnosis of Syphilis.—Hecht describes a modified technic for his precipitation reaction, and urges others to give this improved rapid, H. F. R. II method a trial.

Intensive Heliotherapy in Pulmonary Tuberculosis.—Schürer queries why it is generally assumed that pulmonary tuberculosis does not respond so favorably to heliotherapy as bone and joint tuberculous lesions. He applied heliotherapy in intensive form on the roof of a Berlin hospital, and none of the sixty-three patients with pulmonary tuberculosis thus treated showed any harm from the exposure to the sun, and many were remarkably improved.

49: 871-904 (July 6) 1923

Histopathology of Nervous System Since Nissl. P. Schröder.—p. 871.
*Physiologic Study of Blood Substitutes. E. Atzler.—p. 873.
*Solution for Intravenous Injection. G. Lehmann.—p. 874.
*Formation of Sugar in Animal Body. E. J. Lesser.—p. 875.
Causes for Constitutional Anomalies. A. Greil.—p. 877. Reply. Romv. —p. 878.
Cholagogues and Indications. Lepehne.—p. 878.
*Diabetes and Carcinoma. A. Braunstein.—p. 880.
*Fatal Meningitis After Lumbar Puncture. C. Sonnenschein.—p. 881.
Alleged Tardy Traumatic Cerebral Hemorrhage. L. Jankovich.—p. 882.
Local Anesthesia. J. Fessler.—p. 882.
Treatment of Warts. K. Laemmle.—p. 885.
False Economy in Limiting Necropsies. L. Aschoff.—p. 886.

Substitutes for Blood.—Atzler discusses the subject from the physiologic and Lehmann from the physical and chemical standpoints. The research was done at the institute devoted to occupational physiology at Berlin. The fluid they advocate to serve as a substitute for blood is a mixture of 8 gm. sodium chlorid; 0.2 gm. potassium chlorid; 0.2 gm. calcium chlorid; 0.1 gm. magnesium chlorid; 70 gm. of gum acacia; 1.2 gm. of sodium bicarbonate (to maintain the neutral reaction), and distilled water to 1,000 gm. This solution, they say, corresponds to a physiologic solution in respect to osmotic pressure, colloidal osmotic pressure, ions and other requirements, although differing from blood in viscosity.

Sugar Production in Animal Body.—Lesser explains the mechanism of production of sugar from glycogen in the liver. Recent research has thrown light on this, but has raised other questions still more baffling, which he enumerates.

Diabetes and Cancer.—Braunstein relates that in his nine cases of cancer of the pancreas in the last ten years there was no glycosuria, although necropsy in five in this group revealed that the entire pancreas was involved in the cancer. His test tube experiments with cancer tissue in 0.5-1 per cent. solution of glucose, showed that nearly or fully 50 per cent. of the glucose was destroyed by the cancer tissue. Control experiments with normal tissues were always negative.

He found further a similar glycolytic action in the blood of pneumonia patients; he ascribes it to the glycolytic ferment released by disintegration of leukocytes. This confirmed his observation that the glycosuria often disappeared during pneumonia in diabetics. We know that hyperleukocytosis is common in pneumonia. One practical conclusion from his research is that glycosuria must not be expected as a symptom of cancer in the pancreas, and also that subsidence of the glycosuria in a diabetic when cancer develops, must not be accepted as a sign that the diabetes is improving.

Fatal Meningitis After Lumbar Puncture.—Sonnenschein reports what he thinks is the first case to be published in which a robust young man, a few hours after lumbar puncture, which had revealed clear fluid, developed symptoms of acute suppurative meningitis, fatal the eleventh day. The fluid during life and after death showed only *Bacillus pyocyaneus*, and agglutination tests for this alone were positive. No primary source for the infection could be discovered.

Medizinische Klinik, Berlin

19: 597-634 (May 6) 1923

*Renal Tuberculosis. L. Casper.—p. 597.
*The Blood Pressure Curve in Hypertension. K. Fahrenkamp.—p. 600.
*The Death Rate in Germany Since the War. C. Hamburger.—p. 602.
*Amnesia After Attempt to Hang Oneself. P. Schilder.—p. 604.
Treatment of Cardiac Failure in Shock. F. v. Delbrück.—p. 606.
*Sedimentation in Diagnosis. S. Joseph and M. Marcus.—p. 607.
Anesthesia for Tonsillectomy. A. Cemach.—p. 607.
Fever with Gastric Ulcer. E. Jacobs.—p. 609. Cont'd.
Indications for Radium Treatment. M. Heiner.—p. 612.
Reacting Capacity in Asthenia. E. Baráth.—p. 615.
To Determine Specific Gravity of Small Amounts of Urine and Lumbar Puncture Fluid. A. Kirch.—p. 616.
Torsion of Intestines. H. Engel.—p. 616.
Obstetric Tears of the Perineum. E. Runge.—p. 618.
Recent Literature on Hygiene. H. Ziemann.—p. 620.

Tuberculosis of the Kidneys.—Casper declares that the kidney is the starting point for urogenital tuberculosis in 95 per cent. of the cases, and in a large proportion is the only localization in this system. He regards pus in the urine as the only dependable symptom of renal tuberculosis, and says that inoculation of animals should be done early. The mortality in his last fifty cases of nephrectomy for tuberculosis was only 2 per cent. The process is almost inevitably progressive, untreated or under medical measures alone. Tuberculous lesions in the bladder are an additional argument in favor of nephrectomy unless both kidneys are involved. Bilateral renal tuberculosis usually contraindicates nephrectomy, but exceptionally it might be considered.

The Blood Pressure Curve with Hypertension.—Fahrenkamp has the curves obtained by repeatedly recording the blood pressure three or four times a day for one to three months in 360 persons with hypertension. The type of curve thus revealed throws light on the pathogenesis, diagnosis, prognosis and treatment, as he explains with concrete examples. With malignant nephrosclerosis, the blood pressure keeps at the same high level, never going below 200 mm. mercury even under rest and dieting. All his twelve patients in this group died in a few months. In the second group, the systolic pressure keeps at 220 mm. mercury for a week or two, but under rest and freedom from worry the hypertension drops at times, possibly to 160 mm., and the subjective symptoms are relieved. In one case of this kind a period of continuous high pressure has occurred at times, followed by great fluctuations, during the last four years. The extensive remissions exclude the malignant form of nephrosclerosis. The curve in patients with essential hypertension shows high rises under emotional stress, exertion, nicotin and syphilis, but the blood pressure drops rapidly nearly or quite to normal under rest. Every unfavorable influence is reflected in the rising tension, and the effect of treatment can be estimated with precision. Two patients presented a reversal of the usual curve; the pressure was lowest at evening and highest in the morning. Both of these patients had a secondarily contracted kidney after an inflammatory process.

Death Rate in Germany Since the War.—Hamburger states that the 1913 death rate of 15.8 per thousand inhabitants was the lowest ever recorded in Germany. After the war it jumped to the figure of twenty-five years before, namely, 25.2. But since then it has been improving until, in 1921, with 14.7 per thousand it surpassed even the 1913 record. He ascribes this paradoxical lowering of the death rate under the prevailing financial depression in part to the eight-hour day and vacations, but mainly to the change in the make-up of the population, the dwindling number of children.

Partial Amnesia Cured by Hypnosis.—The man had tried to hang himself, and retrograde amnesia followed his resuscitation by artificial respiration. The amnesia was corrected by several sittings of hypnosis.

Differential Import of Speed of Sedimentation of Erythrocytes.—Joseph and Marcus found the sedimentation test normal in acute appendicitis, but pathologic with acute adnexitis. Other experiences seem to confirm that the test is positive when larger surfaces are involved, as in adnexitis in comparison with appendicitis.

Münchener medizinische Wochenschrift, Munich

70: 659-692 (May 25) 1923

*Isotopic Tuberculin Treatment. W. Stoeltzner.—p. 659.
Treatment of Bone and Joint Tuberculosis with Hydrolysates of Animal Albumin and Animal Organs. R. Haff.—p. 661.
*The Physical Strain of Athletics. Bürkle-de la Camp.—p. 664.
*Morphology of Duodenal Juice. J. Loeber.—p. 666.
Correlation Between Thyroid and Female Genital Organs. Knaus. p. 669.
*The Spleen Irradiation Question. E. Zweifel.—p. 670.
Roentgen Examination of the Stomach. F. Hoffmann.—p. 671.
Operative Treatment of Hypertrophied Mamma. H. Kraske.—p. 672.
Formaldehyd Control of Meinicke Test. C. Sonnenschein.—p. 672.
*An Arsphenamin Fatality. E. Woenckhaus.—p. 673.
Torsion of Ovarian Tumor in Child. W. Mittelstaedt.—p. 674.
History of Discovery of Circulation of the Blood. F. Lejeune.—p. 675.
How Should We Treat Uterine Cancer? O. v. Franqué.—p. 676.
Necessity for Aseptic Departments in Surgical Hospitals. A. Sippel. —p. 678.
Plans for Welfare Work for the Young. W. v. Brunn.—p. 679.

Isotopic Tuberculin Treatment.—Stoeltzner applies the tuberculin test repeatedly to the same spot at intervals. This isotopic repetition of the inoculation produces a local field of immunization, an actual tuberculous focus, in which focal reactions can be induced at will without harm. Each healing tuberculous focus generates antibodies. By this repeated isotopic inoculation, we induce a series of alternately active and healing foci at will, the healing foci generating antibodies each time as the focus retrogresses. The phase of retrogression is thus the main element in this isotopic treatment of tuberculosis. He applied it only by the skin and percutaneous routes, generally between the scapulae, and was favorably impressed with the results. This isotopic principle might be applied to other diseases. It seems paradoxic to try to cure a disease by making new foci, but he says it is merely carrying Koch's work a step farther.

Influence of Athletic Exertion on Kidney Function.—De la Camp reports that 88 per cent. of 84 competing in ski races had albumin in the urine; 83.3 per cent., tube-casts; 41.6 per cent., erythrocytes, and 58.3 per cent., leukocytes. These pathologic findings were more pronounced in the men competing in short races than in the long ones.

Morphology of Duodenal Juice.—Loeber found practically no cells in the duodenal juice of 123 healthy persons, not even after injection into the duodenum of 100 c.c. of a 25 per cent. solution of magnesium sulphate. In persons with catarrhal jaundice, evidences of severe inflammatory desquamation of the mucosa were always found, as also colon bacilli, and occasionally streptococci and staphylococci. In 19 with symptoms of cholecystitis, there was always pronounced leukocytosis in the gallbladder bile, and many colon bacilli. Injection of magnesium sulphate seems to induce reflex contraction of the gallbladder. A typhoid bacilli carrier had typhoid bacilli in the duodenal contents although none had been found in the stools for six months. The gallbladder was consequently removed, but typhoid bacilli were found in the duodenal contents six weeks later. One man aged 30 had long complained of pain in the right upper abdomen, fever and tenderness in the gallbladder region, and the blood showed 11 per cent. of eosinophils. The duodenal contents showed numerous lively specimens of *Lamblia intestinalis* while none could be found in the stools. Catarrhal jaundice was very favorably influenced by rinsing the duodenum with magnesium

sulphate solution every day or second day. Its effect seems to be mainly in forcing open the passage by the bile squeezed out of the gallbladder under its influence. The beneficial effect of magnesium sulphate solution to rinse out the duodenum was particularly pronounced with cholecystitis. The pains and jaundice in two cases rapidly subsided. In two others, gallstones had evidently been forced out of the gallbladder by the contractions, but after this there were no further disturbances. With severe empyema of the gallbladder, caution is necessary.

Irradiation of the Spleen in Gynecology. — Eleven were promptly or completely cured of the thirty-four women treated by mild irradiation of the spleen for uterine hemorrhages, and the others in the group were probably cured likewise. The hemorrhages with chlorosis and general debility seem particularly amenable to this treatment. It may also prove especially useful in preclimacteric hemorrhages.

Arsphenamin Fatality.—The robust, previously healthy man began treatment as soon as the first syphilitic lesion became apparent. He was given 4.35 gm. of neo-arsphenamin by the vein in four weeks. There was a slight rise in temperature after the fourth injection (0.45 gm.) and he complained of headache after the sixth, with general malaise, but this was transient, and for seventeen days he felt perfectly well. Three days after the ninth injection, hemorrhagic encephalitis developed and proved rapidly fatal. The patient had been given mercury rubs at the same time. Is it possible, Woenckhaus queries, that the mercury could have injured the kidneys and thus hindered elimination of the arsphenamin?

Zentralblatt für Chirurgie, Leipzig

50: 1081-1120 (July 14) 1923

Palpation of Diastasis of Rectus Muscles. F. Schoening.—p. 1082.
Intestinal Occlusion by Barium Sulphate Stone. Lemperg.—p. 1083.
*Operation for Acute Cholecystitis. Krüger.—p. 1085.
Secondary Cysto-Urethrorectal Fistula Following Transvesical Prostatectomy. C. Bayer.—p. 1088.
Technic of Arthrodesis of the Ankle Joint. Makai.—p. 1089.

Modified Incision in Operation for Acute Cholecystitis.—Krüger describes his modification of the Riedel incision for all interventions on the biliary tracts. His incision begins 1 cm. below the ensiform process and extends downward, a fingerbreadth to the right of the midline, for 8 or 10 cm. After division of the rectus sheath, the fibers of the muscle are separated in the direction of the skin incision, and retracted. The posterior rectus sheath and the transversalis fascia are now divided extramedially, at the margin of the external portion of the rectus drawn over to the right; the peritoneum is opened on both sides of the falciform ligament, so that the falciform ligament and the round ligament are freely exposed. A two-bladed abdominal speculum is then inserted which produces an almost square opening. The gallbladder may be found from 5 to 10 cm. beneath the lower end of the incision. After division of the round ligament, between two clamps, the gallbladder is loosened from its moorings. At first sight, it may appear difficult to pull a large, low gallbladder up into this small incision far above. The flat left hand is passed across the right lobe of the liver, and placed along the external surface of the gallbladder which it presses toward the midline, until the fundus is on a level with the lower end of the incision. This pushes the right lobe of the liver toward the midline, away from the right thorax wall. The left hand is then replaced by the right, and the gallbladder, now lying approximately transverse, is pushed over to the right, which allows the liver to lapse back to the thorax wall. This brings the fundus to the inner edge of the incision, and usually only a slight jerk is required to cause the gallbladder to spring up through the incision, usually bringing its bands of adhesion with it.

Zentralblatt für Gynäkologie, Leipzig

47: 1073-1120 (July 7) 1923

Sensation of Pressure on Rectum Sign of Separation of Placenta from Body of Uterus. F. von Mikulicz-Radecki.—p. 1090.
*Accumulation of Blood in Uterine Cervix. Meyer-Rüegg.—p. 1095.
New Instrument for Decapitation. K. Blond.—p. 1097.
Instrument for Active Intervention in Abortion. Guggenberger.—p. 1100.
Painlessness of Labor Early Symptom of Tabes. Haselhorst.—p. 1102.
Intermittent Pycmetra. O. Gerich.—p. 1108.

Haematometra Cervicalis. — Meyer-Rüegg describes under this head his fifth case of a special type of climacteric hemorrhage. A woman aged 51 stated that for the past twelve months the menses had been coming on every two or three weeks but lasted only two days, while the blood flow was slight. She had been losing a little blood constantly for three weeks. The portio vaginalis, though somewhat short and thick, was otherwise normal as also the anteflexed body of the uterus. A bloody thread of mucus projected. The sound was scarcely able to penetrate the narrow os uteri, but with slender forceps a path was opened, and about 15 c.c. of blood clots and mucus flowed out. Six weeks after the evacuation regular menstruation began again. Meyer-Rüegg suggests that this condition be borne in mind in connection with climacteric hemorrhages, since possibly a mere dilation of the external os uteri will obviate the necessity of employing radiotherapy.

Acta Medica Scandinavica, Stockholm

58: 109-312 (May 22) 1923

Location of the Umbilicus in Abdominal Paresis. W. Örn.—p. 109.
*Variations in the Wassermann Reaction. J. R. Mörch and T. E. H. Thaysen.—p. 111.
*Speed of Sedimentation Blood Tests. H. Pribram and O. Klein.—p. 132.
Sino-Auricular Heart-Block. M. S. Andersen.—p. 151.
*Diagnosis of Glycosuria. S. Jörgensen and T. Plum.—p. 161.
*Diphtheria Bacilli Carriers. M. Christiansen.—p. 201.
*Arsenic Poisoning from Articles in Domestic Use. K. Petrén.—p. 217.
*The Capillaries in Disease. E. Hisinger-Jägerskiöld.—p. 231.

Spontaneous Variations in the Wassermann Reaction. — Mörch and Thaysen present charts of tests which show that the Wassermann reaction is never constant in untreated patients or those treated a long time before. Blood from one patient (treated forty-seven years ago) taken every other day and sent in for examination under different fictitious names, showed a rise in the amount of active substance from 0.0.40.100 to 0.0.0.0.20.100 from the middle of August to the middle of September, and it again declined to its original value at the end of October. Of 185 tests, 36 showed variation beyond the maximum error of Boas and Thomsen. Of 24 with partial inhibition, 10 became negative later, and of 24 with hemolysis 0 with 0.2 c.c. serum, 7 showed negative reactions later. The variations were more frequently found in weak than in strong reactions. They also investigated a number of serum samples by the sigma reaction—the antigen (alcoholic extract of calf's heart) and the reacting serum being the only substances used—and found that in this test none of the patients showed alterations in the amount of reacting substance. They believe that the sigma reaction gives the correct values, and that the variations of the Wassermann are due to changes in the patient's serum which are foreign to the syphilitic process. The sigma reaction is at present undergoing a thorough investigation at the State Serum Institute of Denmark. (It was described in THE JOURNAL, June 11, 1921, p. 1709.)

Speed of Sedimentation of Erythrocytes and Its Dependence on the Breaking Down of Albumin.—Pribram and Klein give charts of seventy-one tests of the sedimentation speed of blood in normal and various pathologic conditions. They show the sedimentation degree at the end of one hour, the maximum degree and the total time, and the speed in relation to normal in various diseases. Fevers, malignant growths, decrease of total albumin content or of the number of erythrocytes in the blood, increased viscosity, cholesterin content and content in albumin end-products speed sedimentation, while increased albumin content, polycythemia, hypercholesterolemia and cyanosis retard it. In some instances the average speed and that of certain periods are influenced independently. The majority of kidney diseases showed high speed, the maximum sedimentatation in two cases being reached within an hour. Neither diagnosis nor prognosis can be deduced from the speed of sedimentation of the erythrocytes alone.

Differential Diagnosis Between Benign and Malignant Glycosuria by Means of Intravenous Injections of Small Quantities of Glucose.—Jörgensen and Plum injected 18 cardiac patients with 20 to 30 gm. of glucose in a 30 per cent. solution, with improvement in the attacks of pains in two of

four who had received ten injections. They also made a parenteral "loading test" in 17 nondiabetics, 15 diabetics and 4 patients with benign glycosuria, injecting intravenously 20 gm. of glucose dissolved in 50 c.c. water. The blood sugar in normal subjects rose to about 0.300 per cent. at the end of the injection, then rapidly declined, reaching fasting level in ninety minutes, while diabetics required two hours to reach this level. Four patients with arterial hypertension gave normal blood sugar curves. Four boys, weighing from 30 to 45 kg., gave normal curves in response to the test, indicating that the tolerance for carbohydrates is not, or is inversely, proportional to the body weight, and seems to decrease with the progress of age. Excretion of sugar by the kidneys plays an insignificant part in the regulation of blood sugar. This regulation is due to distribution of sugar between the blood and the tissue fluids and its transformation into glycogen. They extol the advantages of this parenteral test over the peroral technic. It apparently establishes the nondiabetic nature of mild glycosurias.

Diphtheria Bacilli Carriers.—Christiansen reiterates that negative findings as to diphtheria bacilli in the nose and pharynx are not dependable. In 100 individuals selected at random he found positive reactions in the fourth test after three preceding negative in 40, and in the third test after two preceding negative in 46. In some instances he has found positive reactions in the eighth test after seven preceding negatives. Among 201 patients with scarlatinal otitis he found diphtheria bacilli in the discharge from the ear in 28, and among 66 diphtheria patients with ordinary acute otitis, in 32. He says there is a primary diphtheria of the ear without nose and pharynx symptoms. Many diphtheria convalescents leave the hospitals with diphtheria bacilli notwithstanding two or three negative cultures, and still more numerous are those who have never had the disease but are carriers of the germs. He calls attention to the Behring method of vaccination of Schick positives.

Etiology and Symptoms of Arsenic Poisoning from Dwellings or Articles in Domestic Use.—Petrén was appointed by the Swedish government member of a commission to investigate this form of poisoning. He reviews the literature of several countries for a century but has found no extensive poisoning of this nature. At Hyères, France, 400 cases of poisoning from wine mixed with arsenic, by mistake for plaster, occurred in 1888. The symptoms of poisoning from arsenic content in wall paper and paint or domestic objects consist of fatigue, headache, vertigo and frequently irritation of the eyes, pharynx and the digestive tract. Even in case of poisoning by inhalation, little arsenic was found in the lungs. Diagnosis from examination of the urine is difficult since the normal arsenic content varies in different individuals from day to day and may increase considerably after eating fish. The commission found only 8 apparently authentic cases in German literature, 36 in Anglosaxon records, and 17 in the older Swedish literature.

Clinical Studies of the Capillaries in Diseases of the Blood and Circulatory Disturbances.—Hisinger-Jägerskiöld began his study of the capillaries in 1919. He has examined 42 healthy individuals, aged 14-30, and 69 patients with various diseases, giving charts and descriptions of results. In some cases of anemia he found the circulation of the smallest capillaries extremely rapid, but slow in the other capillaries, with absence of contraction and other forms of peristalsis. Under compression to arrest the venous circulation, while the arterial inflow remained unhindered—which occurred at 60-100 mm. of mercury in serious cases of pernicious anemia—the capillaries behaved as in the normal. In lymphatic leukemia, the venous capillaries were no larger than the arterial, both fine as a hair, and the circulation was rapid. In examination of 17 patients with valvular defects, 11 with myocardial disease and 6 with aortitis or aneurism of the aorta, he found normal capillaries in cases with full, or slightly impaired, compensation. Conditions of the capillary circulation are determined mainly by abnormal peripheral blood supply, abnormal blood distribution and the volume of the blood. Hence it is possible to estimate the volume, to some extent, from the behavior of the capillaries.

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85: 247-262 (April 12) 1923

*Treatment of Syphilis in Pregnancy. S. A. Gammeltoft.—p. 247.
*Wassermann Test in Prognosis of Syphilis. E. Hess Thaysen.—p. 247.

Treatment of Syphilitic Women During Pregnancy.—Gammeltoft found that frequently syphilitic women do not speak of their pregnancy to their physicians, and when the condition becomes apparent, treatment for syphilis comes too late. He asks physicians to question syphilitic women about their menstruation and, if pregnancy is possible, to examine them with this in view.

Prognostic Value of the Wassermann Reaction in Tardy Syphilitic Disease.—Thaysen found syphilitic aortitis in 38 per cent. of 150 necropsies. Among sixty cases of aortitis, twenty-two had been without subjective symptoms. He thinks that in treatment of syphilis, the emotional shock should be taken into consideration. The psychic shock to the patient on being informed that his disease is syphilis, that it is still uncured, is frequently so great that the etiology should be hidden if possible. The degree of the Wassermann reaction is not parallel with syphilitic aortitis and is of no value in prognosis.

85: 301-324 (May 3) 1923

*Cutaneous Protein Reactions in Asthma. K. Baagøe.—p. 301.
Child Strangled by Supporting Belt. J. Fog.—p. 305.
First Three Months of Child Life. F. Thalwitzer.—p. 306.

Protein Skin Reactions in Bronchial Asthma.—Baagøe by cutaneous tests with thirty-eight different proteins in a girl, aged 9, with asthma of a year's standing, discovered its cause to be cat's hair, all other substances being negative. She had no attack during three weeks at the hospital until playing with a kitten, when an attack followed in seven hours. In asthma of animal origin, he believes that subcutaneous injections of the causative substance in minute, gradually increasing doses is the best treatment. In asthma due to food proteins, he advises ingestion of the substance in minute and increasing amounts.

85: 325-348 (May 10) 1923

*Dyspepsia from Gall-Stones. E. Meulengracht.—p. 325.
Mercuric Chlorid Tablets in Attempts at Suicide. L. Nielsen.—p. 336.
*Antianaphylaxis in Treatment of Hay-Fever. J. Kragh.—p. 339.

Differential Diagnosis Between Dyspepsia from Gallstones and of Gastro-Intestinal Origin.—Meulengracht called 230 patients operated on for gallstones at the Bispebjerg Hospital during the years 1913-1922 for reexamination. Of the 143 who responded, 15 had complicating diseases and were excluded. Of 128 whose gallstone diagnosis had been verified by operation, 31 had been diagnosed correctly at the end of the first attack, 63 had for a long period, in some instances for ten to twenty years, had their affection diagnosed as a gastro-intestinal disease, mostly catarrh, while in others it had been considered nerve, heart or kidney disease, and from 24 no reliable information could be obtained because they had not consulted physicians for a number of years after beginning of symptoms. Of the 128 reexamined, 101 had entered the surgical division under the diagnosis of cholelithiasis, and the remainder under the diagnosis of appendicitis, gastric perforating ulcer, abdominal or renal colic, etc. He concludes that the elements of the subjective symptoms of dyspepsia due to gallstones are similar to those of other forms of dyspepsia, but that they differ from the others in their inconsistent and irregular appearance. Dyspepsia from gallstones is characterized by its sudden changes with apparently motiveless improvements and aggravations. It is not influenced by dieting. Examination for manifest and occult jaundice, for bile pigment in the blood and urobilin in the urine, at once after an attack of pain, is a valuable aid in the differential diagnosis. Achylia is an indicatory symptom in advanced stages, but it appears also in other diseases, and should be considered in connection with cardialgia, and tenderness in the center of the epigastrium.

Importance of Counteracting Anaphylaxis in Hay-Fever.—Kragh, from peptone treatment of three cases of vasomotor rhinitis, confirms the possibility of influencing this disease by counteracting an anaphylactic condition. His results were not permanent in all instances, but he attributes this to the method used. One patient has been free from symptoms for six months and another for six weeks.